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# REPLY TO THE PHYSIOLOGICAL SUBCOMMITTEE OF THE COMMITTEE OF FIFTY.

Mr. GALLINGER presented the following

**REPLY TO THE PHYSIOLOGICAL SUBCOMMITTEE OF THE COMMITTEE OF FIFTY, BY MRS. MARY H. HUNT, WORLD AND NATIONAL SUPERINTENDENT OF DEPARTMENT OF WOMAN'S CHRISTIAN TEMPERANCE UNION.**

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## PART I.—CONCERNING THE PUBLIC SCHOOL INSTRUCTION AS TO THE PHYSIOLOGICAL ACTION OF ALCOHOL.

### INTRODUCTION.

In 1893 a company of gentlemen organized under the name of "The Committee of Fifty to Investigate the Liquor Problem," from which subcommittees were chosen to consider different phases of the question. In June, 1903, after ten years of investigation, the physiological subcommittee published two volumes entitled "The Physiological Aspects of the Liquor Problem."

### AVOWED PURPOSE OF THE COMMITTEE.

The first sentence on page xix of Volume I says the object which the committee had in view was:

> To ascertain the effects of the occasional or habitual use of a moderate quantity of wine, beer, or spirits upon the health and working powers of man.

Notwithstanding this avowed purpose to investigate the physiological effects of moderate drinking, the first paper in the report, covering a third of the first volume, is devoted to a discussion of our national system of public school study of physiology and hygiene, which includes the nature and effects of alcoholic drinks and other narcotics upon the human system; a study which is now mandatory in the public schools of every State in the United States and in all schools under Federal control. This first paper is by Dr. H. P. Bowditch and Prof. C. F. Hodge.

It is a matter of common knowledge that these gentlemen have long been outspoken in their opposition to the present system of public school instruction on this subject. One could wish that in all fairness the work had been undertaken by persons without such prejudice.

### THE SUBCOMMITTEE'S PROPOSAL TO OVERTHROW THE PRESENT SYSTEM OF TEMPERANCE EDUCATION.

That it is the intention of the physiological subcommittee to overthrow this movement is clearly stated in what they say concerning the present system of scientific temperance instruction in the public schools.[a]

> That the removal of this educational excrescence will be no easy task is evident from the result of the attempt in this direction made in Massachusetts during the session of the legislature in 1899. * * * The fact that after a series of hearings the committee on education made a report leaving the whole subject in statu quo shows that a prolonged struggle will be necessary to free our public school system from the incubus which rests upon it. In this struggle the committee of fifty should speak with no uncertain voice.

A letter from Professor von Voit, of Munich, in reply to some member of the subcommittee, further reveals their purpose. It says:[b]

> You were so kind as to inform me of a movement which aims to calm the exaggerated agitation of the temperance question as well as to contradict certain unfounded physiological assertions.

We have already seen that this "agitation," which is prejudged as "exaggerated" and therefore needing to be "calmed," appears to be the present system of scientific temperance instruction in the public schools.

We have now to learn what are the "unfounded physiological assertions" which in advance are considered as requiring "contradiction." The report says[c] that the instruction in the public schools "is not in accord with the opinions of a large majority of the leading physiologists of Europe as shown by the statement printed on page 18 of Volume I of this report." That statement on page 18 is the Cambridge statement which puts forth a before unheard of and unreasonable definition of a poison and asserts that alcohol should not be called that kind of a poison. The school physiologies teach that alcohol is a poison, but in the same connection they teach accepted standard definitions

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[a] Vol. I, p. 45. [b] Vol. I, p. 93. [c] Vol. I, p. 21.

of a poison. This teaching is in no way affected by the Cambridge definition, as will be shown later.

A study of the 800 pages in these volumes shows that there are three special points at which the subcommittee criticises the present system of scientific temperance instruction in the public schools:

1. They object to instruction being given to all pupils in all schools instead of being confined to the older pupils, especially those in the high school.

2. They object to it as "frankly and honestly a total abstinence" movement.

3. They cite for criticism the teaching that alcohol is not a food but a poison.

The report of the physiological subcommittee is evidently intended to be used for the overthrow of this form of education for the people's children. If instruction on the above points is "unscientific and undesirable" it should be overthrown. To ascertain whether this committee have proved that it is, their lines of investigation have been carefully examined. The examination has proved, as we shall show, that—

## REPORT OF PROFESSORS BOWDITCH AND HODGE.

### THE BENEFICENT SYSTEM WHICH THE COMMITTEE WOULD ABOLISH.

The report by Professors Bowditch and Hodge[a] deals with that feature of our public education which legally requires the children in the public schools of this country to study the laws of health including those that relate to the nature and effects of alcholic drinks and other narcotics. This report, therefore, deals with interests that touch not only the individual future well-being of the children of the nation, but also a feature of our system of education which can be shown to be one cause that has helped to make America what she is now admitted to be, namely, the most efficient of the nations in commercial enterprise, owing to the greater sobriety of the men and women engaged in her industrial pursuits. An English paper,[b] commenting on the report of the Mosely industrial eommission which last year was sent from England to discover the secret of our commercial success, says:

1. No evidence is presented by the subcommittee to prove that alcohol is a food in the sense in which the word is commonly understood.

2. No evidence is presented by the subcommittee that alcohol is not a poison according to standard definitions of the word poison.

3. No evidence is presented by the subcommittee that anyone who attempts the beverage use of alcoholic drinks, even with meals after the day's work is done, can be sure that he will not fall a victim to the alcoholic appetite. Hence they do not prove that moderate drinking is safe.

4. No evidence is presented by the subcommittee that, confining the study of temperance physiology to the older pupils, especially those in the high school, would not introduce it too late, after cigarette and other wrong habits may have been formed or after an overwhelming majority of the pupils have left school.

Therefore the physiological subcommittee have not proved the

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[a] Vol. I, pp. 3–136. [b] The Alliance News.

indorsed physiologies inaccurate on the above points or that confining the teaching to the older pupils would be either wise or safe.

> The Americans have realized that alcoholic liquor is not one of the things which tend to industrial supremacy and national progress. * * * There is no disputing that the mass of the evidence given by the Mosely delegates shows that the use of alcoholic liquors among American workmen is much less than among English workmen.

Mr. Alfred Mosely, the originator of the commission, says in his report:

> My personal conclusion is that the true-born American is a better educated, better housed, better fed, better clothed, and a more energetic man than his British brother, and infinitely more sober. As a natural consequence he is more capable of using his brains as well as his hands.

Another Englishman, Mr. John Newton, in a later edition of the the paper quoted above, says:

> The universal testimony of those who know both countries is that the workman of America is superior to the workman at home mainly because he is more sober. * * * He neither wastes his physical nor his mental resources in the public house to anything like the extent our workmen at home do.

Looking for the cause of this greater sobriety, the same writer says:

> In the United States scientific temperance teaching is universal in the elementary schools. They early recognized that the "star of hope for the temperance reform stands over the schoolhouse.

Many other instrumentalities have been powerful factors in the efforts which have secured the conditions our neighbors thus comment upon, but all these without scientific temperance instruction in the public schools did not and could not secure all the gain we now rejoice over.

It is this system of education which Professors Bowditch and Hodge term an "educational excrescence" and call upon the Committee of Fifty to help remove.

The object of the physiological subcommittee being squarely before us, we are now prepared to examine the methods by which Doctor Bowditch and his associate, Doctor Hodge, reached conclusions adverse to the study as a whole in elementary schools and to the school physiologies.

### THE SUBCOMMITEE'S CRITICISM OF THE STUDY AS A WHOLE.

In 1897 Doctors Bowditch and Hodge sent out a circular letter to 117 European and American physiologists asking their opinion on the following points:[a]

> To what extent do you think it wise to introduce alcoholic physiology into elementary public-school courses? I refer to the "scientific temperance instruction" promoted by the Woman's Christian Temperance Union, viz, the requirement by law that the subject be given considerable prominence throughout the school course. Have you examined any of the "approved and indorsed" physiologies? If so, what ones? What is your opinion of them? Finally, will you give a list of arguments which seem most conclusive to yourself either for or against this method of preventing alcoholism?

The letters which went to European physicians, Doctors Bowditch and Hodge say, contained additional information, giving "a brief description of 'scientific temperance instruction' as to text-books and time requirements."

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[a] Vol. I, pp. 14, 15.

MISREPRESENTATION OF FACTS TO PHYSIOLOGISTS.

No verbatim report of their description to Eupropean physicians of scientific temperance instruction in the United States is given, but the comments it called forth in reply show that it must have misrepresented the facts. For instance, Professor Kronecker, of Bern, says:[a]

I was quite shocked when I read in Hodge's letter, which he wrote at the request of the Committee of Fifty, that in the primary and middle grades every child from 6 to 17 years is instructed 250 hours in the physiology of alcohol.

It is no wonder he was shocked.

Professor Kronecker was told what was not true. The study in question is not "the physiology of alcohol," but physiology and general hygiene, only about one-fifth of the whole being instruction as to the nature and effects of alcoholic drinks and other narcotics.

Furthermore, there is no requirement of 250 hours of instruction even in the whole subject of physiology and hygiene. Even the most stringent law requires but 330 lessons, not hours, which is a very different matter. There is no legal requirement as to the length of lessons in this subject. Ten minutes is the average length of any lesson in the first primary year, 15 minutes in the second and third years, and 30 minutes in grades above the primary. Therefore, the 330 lessons required for this study take about 140 hours, in all, of a probable school attendance of 7,200 hours—less than 2 per cent of the whole. Only one-fifth of even this small amount of time need be given to temperance matter; that is, about 28 hours in 9 years, or an average of $3\frac{1}{9}$ hours per year.

It should be remembered that but one State requires even as many lessons as this, the next most specific law calling for but 240 lessons in the entire subject of physiology and hygiene, including the temperance matter, through the whole school course.

The most charitable explanation of this misrepresentation on the part of the subcommittee as to the amount of time required for this subject in American schools is that it was the result of careless or superficial examination. But whether the result of carelessness, or prejudice, or both combined, such misrepresentation by scientific men in so important a matter is inexcusable.

Some of the replies received from both European and American physicians are published in an appendix to the report of Professors Bowditch and Hodge.[b]

FAVORABLE FOREIGN TESTIMONY DESPITE MISREPRESENTATION.

Notwithstanding the misrepresentations contained in the information sent out with the circulars to the European physicians, almost no adverse criticisms were returned, and what little there was appeared to be mainly based on the false information sent them. Many, on the other hand, most emphatically favored such instruction and even answered very completely the objections raised by their informants.

Some of these opinions are cited below:

Professor Fick, of Wurzburg, wrote:[c]

To your second question I have to answer that I consider instruction upon the effects of alcohol very advantageous. I believe that this instruction must lay special

[a] Vol. I, p. 89. [b] Vol. I, pp. 46–94. [c] Ibid., p. 83.

stress upon the undeniable truth that alcohol is under no condition and in no amount beneficial to the healthy body. Whether alcohol can act beneficially under morbid conditions of the body I do not consider proved.

Professor Dogiel, of Kasan, Russia, said:[a]

Ethyl alcohol can be regarded neither as a useful stimulant nor as a food material. * * * The effort to check the propensity to the use of alcohol, to root out the passion for drink, is most assuredly no Utopian project. It lies within the limits of possibility. The inner consciousness provides the only means to this end—a firm will, a strong character—and is maintained only through a correctly guided education from earliest childhood. * * * An intelligent teaching of the injurious effect of alcohol introduced in the schools would be very desirable and extremely advantageous; indeed, therein lies the only way by which the development of the inclination for the use of alcohol can be combated.

Doctor Baer, of Berlin, Germany, wrote:[b]

I can not regard it as an argument against this sort of instruction that the child, when thus taught in the school, may come into conflict with the lives of his parents. According to this pedagogical principle, one must not teach in the schools the fundamental doctrines of morality, * * * because unfortunately in many families these are actually and openly sinned against. Many children are said, as you allege, to be led to a liking for alcoholic drinks through this instruction. If such is actually the case, it is caused, in my opinion, only by a bad sort of instruction and by a very unfortunate method which the teacher himself chooses to employ.

Professor Schäfer wrote:[c]

To assume the possibility of such instruction increasing their [alcoholic drinks] abuse seems to indicate a very definite belief in the asinine qualities of human nature.

Professor von Bunge, of Basle, says:[d]

It is important to overcome prevailing prejudices before it is too late—that is, before the young people have become slaves to alcohol.

Professor Bunge also made a very good reply[e] to the objection "too much time," based on the misrepresentation of 250 hours given to "alcohol physiology." He said:

With regard to the number of hours, 250 hours seem to me to be a great deal, certainly, yet I do not presume to contradict experienced abstinence leaders. We ought not to forget how many more hours the contrary is brought before the young.

An attempt is made[f] to throw discredit upon Doctor Baer's testimony by speaking of him as "a physician in a penitentiary near Berlin." Doctor Baer's official titles at that time were privy counselor of the board of health and chief physician of the penitentiary. Another fling at Doctor Baer is made in a footnote, where he is spoken of as "this solitary advocate of scientific temperance instruction."[g] This remark is absolutely untrue, for 8 of the 13 foreign physiologists who replied to the circular letter favored such instruction. The late Professor Fick, of Wurzburg, in his widely circulated pamphlet on the alcohol question, published in Wurzburg in 1892, twice speaks of Doctor Baer in terms of high respect. On page 7 of his pamphlet, Professor Fick refers to "Doctor Baer in his celebrated work, The Drink Appetite and Its Dangers."[h] Again, on page 13 of his pam-

[a] Vol. I, pp. 79–82.
[b] Vol. I, p. 74.
[c] Vol. I, p. 73.
[d] Vol. I, p. 77.
[e] Ibid.
[f] Vol. I, p. 17.
[g] Vol. I, p. 17.
[h] Dr. A. Baer in seinem ausgezeichneten Werke, die Trunksucht und ihre Abwehr.

phlet, Professor Fick refers to the same book and to Doctor Baer as "the foremost authority on the alcohol question in Germany."[a]

Why this attempt of Doctors Bowditch and Hodge to belittle Doctor Baer? Is it because of the following statement by Doctor Baer?[b]

> The facts in the approved and indorsed school books on hygiene and physiology can be considered as the expression of modern science, in so far as they bear upon the use of alcoholic drinks. With us, as with you, now and then a voice is raised in favor of the opposite view; this can not, however, greatly modify the above-mentioned opinion. In all questions that come under scientific discussion there are dissenting and modifying views, but through them all there runs an underlying opinion, from which very few of the scientists differ. * * * If an instruction in this direction could be given [in Germany] I would have exactly the same things taught which are regarded as the essential things in the books above referred to.

It should be remembered that Doctor Baer, in 1897, at the request of representatives of Christian churches and friends of temperance and education in the United States, examined all of the books then indorsed. He was asked to point out any inaccuracies in the books that called for emendation. His testimony was:

> In order to ascertain the truth of the important question at issue I have gladly undertaken the task and have examined with strict impartiality the school books sent me.
>
> On the basis of the examination I have made, I can assert that the above-mentioned school text-books, in respect to their statements regarding alcoholic drinks, contain and disseminate no teachings which are not in harmony with the attitude of strict science. Ideas and facts as to the actual value of alcohol as a food, as to the effect of its occasional and habitual use upon the body, upon the tissues and organs, likewise upon the brain and its activity, are throughout represented correctly and clearly, and often with remarkable felicity adapted to the youthful understanding.

### AMERICAN TESTIMONY.

The subcommittee claim that of the American physiologists who replied all but one oppose the present temperance teaching in the schools. Examination of the 11 letters published shows how "eminently fitted" these gentlemen were to express an opinion. Three of the 11 say they know little or nothing about the school text-books on this subject; 2 say they are not fully acquainted with the literature on the alcohol question; 3 give no information as to whether or not they are familiar with the indorsed books. Of the remaining 3, who do claim to be familiar with this school literature, 1 enumerates as indorsed four books, two of which are not and never have been indorsed, while the one he selected for special criticism is not only unindorsed and an old book now practically out of use, but one which has always been especially condemned by the scientific temperance instruction department on the very points for which he critcises it. Such igorance is the more inexcusable since 4 of these physiologists are themselves members of the subcommittee, or their assistants, chosen to prepare this report.

Professor Howell, of Baltimore, one of the eleven, says:[c]

> About the fact that those who begin to use alcohol moderately incur the danger of becoming victims to its excessive use there can be no difference of opinion.

Thus far he is in harmony with the present teaching in the schools. He says he has not wholly made up his mind whether "it is the duty

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[a] Des ersten Kenners der Alkoholfrage in Deutschland.
[b] Vol. I, p. 74.
[c] Vol. I, p. 56.

of the public schools to teach temperance, or rather total abstinence," but the people have made up their minds; and the result is our present system of temperance education. Better evidence than has yet been brought against this teaching will have to be produced to change this popular verdict.

One American physiologist, Dr. P. A. Levene, of New York, is pointed out in the report of Professors Bowditch and Hodge as an exception to those holding opinions adverse to the scientific temperance instruction. He is spoken of as "a recent acquisition to the ranks of American physiologists who should probably be classed with a small group of foreign scientists." The only apparent reason for their attempt to discount this gentleman's opinions would seem to be his approval of temperance teaching in the schools.

The following are some of the passages from his letter: [a]

> There is no better weapon in the struggle against evil than knowledge.
> Of all we learn, we retain longest in our minds what we have learned in the days of our youth (on the principle of the law of reflexes). If only one child out of hundreds shall be saved by this method from alcoholism, the work will be worth doing.

### TESTIMONY OF TEACHERS.

The report of Doctors Bowditch and Hodge, in summing up the opinions of teachers, says: [b]

> Practically all are agreed that the subject ought to receive a reasonable amount of attention in connection with courses in physiology and hygiene, but they are opposed to exacting legislation on the subject.

No one can justly claim that 240 or 330 lessons in physiology and hygiene, including a due proportion of temperance matter, distributed through nine years, which is the most that any law requires, is an unreasonable amount of study of this important subject. From 600 to 900 lessons in geography are given in the same time. Why, then, should a law-abiding teacher object to a law requiring this moderate amount of physiology and hygiene? It is the man who does not want to obey the law "Thou shalt not steal" who objects to exacting legislation against thieving. Every teacher quoted by the subcommittee's report as objecting to specific requirements in these laws can be matched by many others who do approve and are doing good work under such statutes.

The subcommittee say that "each teacher must be allowed to work in his own way and adapt his teaching to needs of different classes of pupils and even to different individuals if the greatest good and the least harm is to result." [c]

No teacher is prevented from doing this by even the most specific laws. They simply require that this instruction shall be given all pupils in all schools, and that the necessary means and opportunities shall be provided for both teacher and pupil.

### TEMPERANCE EDUCATION A POPULAR, NOT AN AUTOCRATIC MOVEMENT.

The report says: [d]

> That the originators of this educational scheme were honest in their intentions there is no reason to doubt.

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[a] Vol. I, p. 60. [b] Vol. I, p. 41. [c] Ibid., p. 37. [d] Ibid., p. 45.

They here speak of originators as though there had been more than one, but in discussing temperance education they charge [a] that it is a "purely autocratic" movement, that "for its origination, for its policy, and for every development in its history Mrs. Mary H. Hunt is practically responsible."

Great movements almost always have had their initiative in individual conviction and power to combine with others in translating conviction into action. The temperance education laws of the United States represent not an autocracy, but the intelligent convictions of the American people, who, through their various legislatures, have said that their children shall have this education.

If, before giving these volumes to the public, this physiological ubcommittee had made an impartial study of the subject, they would have discovered that it is the official obligation of the superintendent of scientific temperance instruction "to originate, to advise, and to direct plans of work, and to cooperate in carrying out the same," with the Woman's Christian Temperance Union of our own and other nations, and hence that this study, instead of being the work of an autocrat, represents in this country more than a quarter of a million of earnest, educated, intelligent Christian women, wives and mothers, who are so many colaborers for this form of education which the men of the nation in our legislative assemblies have voted shall be given the children of this country.

### EVIDENCE OF RESULTS IGNORED BY THE SUBCOMMITTEE.

The report of Professors Bowditch and Hodge says: [b]

> The final question as to results is naturally most important. From letters of the department of scientific temperance instruction we learn that it is too early to expect results.

The files of department correspondence show that in a letter dated July 12, 1897, Professor Hodge asked the following question:

> Have you any data from any State showing decrease in consumption of alcoholic drinks since the passage of temperance education laws? Do you consider it time to look for such decrease?

In the department letter book under date of July 16, 1897, appears the following reply to this question written by Mrs. Hunt's secretary:

> * * * Mrs. Hunt does not feel that the temperance education laws have been in force long enough at this time to expect definite, tabulated results. The children in our public schools are not, of course, consumers of alcoholic drinks, and therefore teaching them in regard to the nature and effect of such drinks would not immediately affect the per capita consumption. We do not look for such noticeable decrease in any shape that could be estimated until somewhat later. * * *

The reader will notice that it is to Professor Hodge's request for "data showing decrease in consumption of alcoholic drinks" that the secretary replied "it is too early to expect definite, tabulated results," and she tells why, proceeding then to give incidental results. Why did not Professor Hodge state that his question and the answer he reports as to results referred only to per capita consumption? Moreover, the correspondence in question took place in 1897, six years ago, but it is published now, 1903, as though it told the story of to-day.

To find what was really true concerning the results of this education, a committee in New York, in 1902, instituted an inquiry throughout

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[a] Vol. I, pp. 22–23. [b] Vol I, p. 43.

the sixty counties of that State. These inquiries were made of the parents, the persons nearest to the children, and and hence best qualified to judge of the effects of the instruction. The following facts were obtained:

That this teaching is resulting in a marked increase of knowledge of hygiene on the part of the children, which is put into practical application in the home; that it is leading the children to resist temptation to smoke and to drink, in many cases is causing parents as well to abandon these and other unhygienic habits; that it is lifting the general tone of the community, according to many reports.

The individual testimonies as to these results were printed in a 16-page pamphlet,[a] which was sent to every member of the Committee of Fifty, in September, 1902, eight months before the publication of these two volumes of the subcommittee's report. This certainly gave ample time for the incorporation of the results of this New York inquiry in the published report of the subcommittee.

Why have the subcommittee ignored this official report from the great empire State, which for eight years has been under one of the best laws, and why have they published instead the distortion of a letter written six years ago, and passages from the report of Mr. George H. Martin made thirteen years ago, and a report made by George W. Fitz, M. D., in 1897, from data collected for use in the attempt to remove "this excresence" [the temperance education law] from the laws of Massachusetts?[b]

The public has a right to expect the latest facts from a committee professing to make an unbiased investigation worthy of public confidence.

A census of the whole country has been taken since Professor Hodge in 1897 asked for results. That census shows that during the ten preceding years in which these laws had come quite universally into force there was an increase of 4.1 years in the average length of life of the American people.

The widespread teaching of physiology and hygiene in the public schools has greatly helped in securing the wide dissemination of sanitary knowledge which physicians admit has been one of the chief factors in bringing about the above result.

If Professors Bowditch and Hodge were really anxious for statistics showing the relation of temperance instruction to the per capita consumption of alcohol, why did they not examine recent reports of the Internal-Revenue Department before publishing their own report? Had they done so, they would have found that the gain in the per capita use of alcoholic liquors throughout the country during the eleven years preceding the last report was only one-third as great as in the previous period of eleven years when the public school study of this subject was being first introduced. That there was any increase at all during the last eleven years was undoubtedly due to the fact that during this period we were receiving annually an average of 400,000 immigrants, the majority of whom brought with them Old World drinking habits.

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[a] Report of the investigation of the New York State central committee as to the results of the study in the public schools of New York of physiology and hygiene, including the nature and effects of alcoholic drinks and other narcotics.

[b] Vol. I, p. 45.

During the last decade the children in this country have been learning in the schools quite universally that alcohol injures working ability. Observers in this and other countries recognize the fact that the wide dissemination of this and related truths has markedly affected our industries, leading both employers and employees to accept abstinence as an essential to the success that has helped to give our nation its present high rank in industry and commerce.

If the subcommittee deny that this education has been a factor in securing the above results, here stand the facts.

### THE SUBCOMMITTEE'S CRITICISMS ON THE INDORSED PHYSIOLOGIES.

We have already examined and found groundless the committee's criticisms of the present system of temperance education as a whole. Next will be considered their charges against the indorsed physiologies. As already stated, the committee claim to base their criticisms upon comparison of these books with medical works, and upon the testimony of foreign and American physiologists.

#### INDORSED PHYSIOLOGIES NOT COMPARED WITH LATE AUTHORITIES.

Doubt is raised as to the fairness of the comparison between the medical college text-books and those used in the public schools by the statement that they (Doctors Bowditch and Hodge) "shall make but little reference to recent investigations which have not yet found their way into standard text-books, these being fully considered in other reports."

Accordingly we find the public school text-books compared for the most part with old medical works, and not with the results of late investigations, such as those reported by Professors Abel, Chittenden, Abbott, and others contained in this very report of the subcommittee.

It has been said that the experimental investigations made by these men were undertaken to test the accuracy of the public school text-books. If this is true, why are not the statements in the school text-books compared fairly with the results of recent investigations, instead of with opinions which in many cases were old, discordant, or unsupported by such investigation?

#### THE FUNDAMENTAL QUESTION—ALCOHOL A FOOD OR A POISON.

The special topic in the indorsed books chosen for criticism is what the committee term "the fundamental question of the food value of alcohol and its influence upon the processes and organs of digestion."[a] They compare the teachings of the school physiologies on this point with the teachings of what the committee term the "standard text-books used in medical colleges." On this subject they divide physiologists into three groups.[b]

1. A group more or less strongly opposed to any use of alcohol as a food or with food.

2. A group in favor of the use of alcohol with food, but maintaining that its classification as a food is not clearly established.

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[a] Vol. I, p. 3. [b] Vol. I, p. 8.

3. A group who "evidently consider recent discussions as to the food status of alcohol unnecessary quibbling. For them the evidence is sufficient to pronounce alcohol in moderate quantities a food."

PHYSIOLOGISTS WHO HOLD THAT ALCOHOL IS NOT A FOOD.

The first group of physiologists who take ground more or less strongly against any use of alcohol as food or with food they designate as "a small group," and the same gentlemen are referred to[a] as "more or less actively interested in the cause of reform in the use of alcohol," as though such interest minimized the value of their evidence.

It would be quite as reasonable to refer to an eye specialist as a gentleman "more or less actively interested in the treatment of eye diseases," as though that lowered the value of his opinion in his special subject.

It is noticeable that any authority, no matter how great his ability or acknowledged position, who is a defender of total abstinence, is belittled or his testimony discounted by Professors Bowditch and Hodge, representatives of the committee that announced[b] to the public their purpose "to collect and collate impartially" all facts bearing upon the problem in order that their findings might receive "a measure of confidence not accorded to partisan statements."

The value of an investigator's testimony depends upon his skill in investigation, his logical faculty in seeing the relation of his demonstrations to the whole subject, and his probity in reporting his findings. The value of his opinion is not to be discounted if he happens to be endowed with a heart and can sympathize with humanity's sufferings, and can see the application of his findings to human needs. The "small group" of physiologists made by Professors Bowditch and Hodge to appear as special pleaders have made such investigations on the alcohol question as entitle them to recognition as experts in that subject. They have formed a large, growing, and active organization in Germany, where they publish a monthly magazine.[c] Among the leaders of this movement are Prof. G. von Bunge, professor of physiological chemistry in the University of Basle; the late Professors Fick, of Wurzburg, and Pettenkofer, of Munich; Doctor Forel, for many years professor of psychiatry in the University of Zurich; Professor Gaule, of Zurich; Professor Dogiel, of Kasan; Professor Richet, of Paris; Professors Wlassak and Kassowitz, of Vienna.

A statement that alcohol is not a food, but a poison, has been signed by 99 German physicians, 35 Swiss, 17 Austrian, and by enough English and American to bring the total number of signatures (1903) up to 800.

PHYSIOLOGISTS WHO HOLD THAT ALCOHOL HAS NOT BEEN PROVED A FOOD.

The second group of physiologists described in this report as those who do not consider it proved that alcohol is a food, includes Professor Schäfer, who says:[d]

> It can not be doubted that any small production of energy [by alcohol] is more than counterbalanced by its deleterious influence as a drug upon the tissue elements, and especially upon those of the nervous system.

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[a] Vol. I, p. 17.
[b] The Liquor Problem in its Legislative Aspects, p. v.
[c] Internationale Monatsschrift zur Bekämpfung der Trinksitten.
[d] Text-Book of Physiology.

PHYSIOLOGISTS WHO HOLD ALCOHOL TO BE FOOD BECAUSE IT IS OXIDIZED IN THE BODY.

The ideas of the third group, those who think that the discussion of alcohol as a food is "useless quibbling," are represented first by a quotation from a text-book issued sixteen years ago (1887),[a] the author of which, Dr. Lauder-Brunton, now refuses[b] to subscribe to the statement that alcohol "supplies energy like common articles of food."

Two other quotations from men in this group[c] are dated 1889, fourteen years ago, and all base their conclusions as to the food value of alcohol simply upon the fact that it is oxidized in the body and liberates energy. They do not take into consideration, as Professor Schäfer does, the counterbalancing amount of harm the alcohol may be doing at the same time.

Wood's Therapeutics, quoted by the committee,[d] even goes so far as to compute that 4 ounces of strong spirit will suffice to maintain the circulation and respiration for one day, because 2 ounces of alcohol furnish as much heat as 9.5 ounces of lean beef, which is sufficient for the above bodily needs.

But 9.5 ounces of meat can supply nourishment to the body without injuring it, while 2 ounces of alcohol can be shown to have injurious effects. Professor Abel points out[e] that 0.9 ounces of alcohol "suffices, when taken by an individual of average weight, to induce cerebral changes that can be made the object of study." Thus there is a marked difference between the effect of meat and alcohol, a difference which the quotation from Wood's Therapeutics fails to state.[f]

The next quotation representing this third group of physiologists is from Professor Lusk and deals only with gastric digestion, which he thinks alcohol promotes; but this opinion does not harmonize with the experiments of Professor Chittenden or those of other experimenters whose work the latter reviews.[g] On this point Dr. P. A. Levene, of New York, says:[h]

> No experiments on alcohol and its influence on digestion (Chittenden and Mendel, for instance) have ever disclosed any beneficial effect of it [alcohol].

Certainly the subcommittee should not condemn the school text-books for teachings which their own experimental findings confirm.

The last "standard medical text-book" quoted in support of calling alcohol a food, in contrast with the opposite teaching in the public schools, was published fourteen years ago, 1889. It was written by Professor König. This German author sees in "the strong craving for brandy on the part of the laboring class whose food consists of difficultly digested materials (potato, bread, etc.)" an evidence that alcohol in the form of brandy is an aid to digestion.[i] "A strong craving for brandy" is a pretty sure symptom of the abnormal craving popularly termed the "alcoholic appetite," which is one evidence of alcohol poisoning. Apology for the school text-books because they do not harmonize with Professor König's illogical and undemonstrated opinion on this point is needless.

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[a] Vol. I, p. 8.
[b] Ibid., p. 18.
[c] Ibid., pp. 9, 11.
[d] Ibid., p. 9.
[e] Vol. II, p. 119.
[f] Reply, p. 21.
[g] Vol. I, p. 281; also Reply, p. 24.
[h] Vol. I, p. 58.
[i] Vol. I, p. 10.

THE PARALLEL COLUMN COMPARISON.

Doctors Bowditch and Hodge next proceed to compare, by means of parallel columns, statements from the indorsed school physiologies to the effect that alcohol is a poison and not a food, with statements from three "standard text-books" which set forth opinions supposed to contradict the public-school books. The first of these three quotations agrees with the indorsed physiologies concerning the danger of acquiring the alcoholic habit. The second is old and untenable. The third is contradicted by later investigations.[a]

The first of these quotations is from Howell's American Text-Book of Physiology, and is the rather equivocal assertion that "it may, perhaps, be said with safety that in small quantities it [alcohol] is beneficial, or at least not injurious, barring the danger of acquiring an alcohol habit, while in large quantities it is directly injurious to the various tissues."[b]

"The danger of acquiring the alcohol habit" is the special form of harm from the use of "small quantities" which the school text-books emphasize. The Howell text-book, in mentioning this danger, is thus far in harmony with them. Professor Howell twice emphasizes this point in his letter to the subcommittee where he says:[c]

> About the fact that those who begin to use alcohol moderately incur the danger of becoming victims to its excessive use there can be no difference of opinion. * * * Most men will admit that * * * he who drinks is in danger of becoming a drunkard.

The admission of this danger is an admission that even in small quantities alcoholic liquors are capable of poisoning, for the alcoholic craving is evidence of an inherent power to harm, which is the distinctive characteristic of a poison.

The second quotation cited against the school text-books in these parallel columns is from Fothergill's Practitioner's Handbook of Treatment, the author of which has been dead fifteen years. The passage quoted was written twenty-three years ago and stands now just as the author left it, although the book bears on its title page the date of 1897. It says:

> If alcohol is oxidized in the body it is therefore a food.

Many modern physiologists, some of whom are quoted by the subcommittee, hold that oxidation does not prove a substance a food, because many known poisons may be oxidized in the system and injure at the same time.

Professor Abel, one of the committee's own investigators, says:[d]

> Oxidizability can not be made the measure of usefulness in regard to this substance.

Prof. C. von Voit says:[e]

> A substance may be consumed by the body and liberate energy and yet be harmful.

Prof. W. Kühne, Heidelberg, says:[f]

> To my view the oxidation of a substance in the animal body does not determine its injurious or its useful effects.

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[a] Vol. II, p. 125.
[b] Vol. I, p. 11.
[c] Vol. I, pp. 56–7.
[d] Vol. II, p. 159.
[e] Vol. I, p. 93.
[f] Vol. I, p. 90.

Professor Gruber, president of the Royal Institute of Hygiene, Munich, says in a recent article:[a]

> Does alcohol truly deserve to be called a food substance? Obviously, only such substances can be called food material, or be employed for food, as, like albumen, fat, and sugar, exert nonpoisonous influence in the amounts in which they reach the blood and must circulate in it in order to nourish. * * * Although alcohol contributes energy it diminishes working ability. We are not able to find that its energy is turned to account for nerve and muscle work. Very small amounts, whose food value is insignificant, show an injurious effect upon the nervous system.

A passage from Wood's Therapeutics is the third one quoted by Professors Bowditch and Hodge to show lack of agreement between the medical and public school physiologies. The latter teach that alcohol is a poison. As opposed to that, the following statement from Wood is cited:

> The habitual use of moderate amounts of alcohol does not directly and of necessity do harm; to a certain extent it is capable of replacing ordinary food.

But Professor Wood can not prove that the habitual use of "moderate amounts" will not lead to a craving for immoderate amounts that will destroy the user. The power to create that craving is evidence of the poisonous character of alcohol. Moreover, lack of agreement between the school physiologies and Wood's Therapeutics does not appear so very serious when we find that Professor Abel (one of the Committee of Fifty's own investigators) convicts this medical work of error on another subject.[b]

A curious objection to the statement that alcohol is a poison appears in a quotation from Hoppe-Syler,[c] viz:

> Traces of alcohol are found in human organs, such as the brain, muscles, liver, not only after alcoholic indulgence, but without this they seem to be constantly present.

Other poisons which, if not duly excreted, would do serious harm, are also formed in normal bodily tissues, the result of healthful bodily processes; but no one has arisen to say that they are not therefore poisons.

### THE COMMITTEE'S APPEAL TO PHYSIOLOGISTS.

The physiological subcommittee, in this effort to contradict the statement of the public school physiologies that alcohol is not a food but a poison, included also in their letters addressed to physiologists in this country and Europe questions as to their opinions on the food value of alcohol and its classification as a poison.

Forty-five of the 117 letters sent out were addressed to European physiologists, only 13 of whom replied. Of these 13, 7 objected to calling alcohol a food and 2 do not appear to have expressed an opinion.

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[a] Münchener Neuesten Nachrichten, May 19, 1903.

[b] Wood's Therapeutics teaches that "alcohol must be considered a direct stimulant to the heart" (p. 364, edition of 1897). The school text-books have taught the contrary for a number of years, basing their statements upon the demonstrations of Richardson, Schmiedeberg, Bunge, Cushuy, and others who have taught just what Professor Abel now shows to be true, that "alcohol does not directly stimulate either the heart or the vasomotor centers" (Vol. II, p. 79). Professor Abel (Vol. II, p. 65) shows that Wood's Therapeutics supports opinions as to the stimulant action of alcohol "which can not stand the test of a close physiological scrutiny."

[c] Vol. I, p. 13.

This must have been discouraging to the subcommittee, but they tried again.

The next year, September, 1898, Doctor Bowditch and other members of the physiological subcommittee attended the International Physiological Congress in Cambridge, England. There a statement concerning alcohol as a food or a poison was drawn up and signatures were solicited.

THE CAMBRIDGE STATEMENT.

This statement was as follows:[a]

The physiological effects of alcohol, taken in diluted form, in small doses, as indicated by the popular phrase "moderate use of alcohol," in spite of the continued study of past years, have not as yet been clearly and completely made out. Very much remains to be done, but thus far the results of careful experiments show that alcohol so taken [*a*] is oxidized within the body and so supplies energy like common articles of food, and [*b*] that it is physiologically incorrect to designate it as a poison—that is, a substance which can only do harm and never good to the body. Briefly, [*c*] none of the exact results hitherto gained can be appealed to as contradicting, from a purely physiological point of view, the conclusions which some persons have drawn from their daily common experience, that alcohol, so used, may be beneficial to their health.[b]

The subcommittee have previously charged[c] that "much of the methods and substance of the so-called scientific temperance instruction in the public schools is unscientific and undesirable," that "it is not in accord with the opinions of a large majority of the leading physiologists of Europe *as shown by the statement printed on page 18*,"[d] which is the above Cambridge statement.

Does that statement prove the teaching of the indorsed text-books to be inaccurate is thus the pivotal question, for their attack upon the text-books, according to their own words just quoted, rests on the difference between the Cambridge statement and the teachings of the indorsed text-books.

The Cambridge statement consists of three points which are to be compared with the teachings of the indorsed books. These points are designated by the inserted letters *a*, *b*, and *c*.

The Cambridge statement contains a definition of a poison which is both unjustifiable and absurd, as will be seen from the following parallel columns. This definition is apparently used to represent the teaching of the indorsed text-books. No such definition of a poison is to be found in these books. Thus the teaching of these books as to what a poison is is misrepresented, and then the verdict "unscientific" is pronounced upon the misrepresentation.

| A GARBLED DEFINITION. | A STANDARD DEFINITION. |
|---|---|
| The Cambridge statement [*b*] says: "It is physiologically incorrect to designate it [alcohol] *as a poison, that is, a substance which can only do harm and never good to the body.*" | What the indorsed books teach is that, as a beverage, *alcohol is a poison, that is, a substance which has the power, if absorbed into the blood, to injure health and destroy life.* |

In some cases explanations like the following are added:

When we use the word poison we are likely to think of a substance, such as strychnine or arsenic, that causes or may cause death in a very short time. But there are

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[a] Vol. I, p. 18.
[b] The letters *a*, *b*, *c* are introduced in the above statement for subsequent reference.
[c] Vol. I, p. xxi, par. viii.
[d] Italics ours.

many poisons that work very slowly, sometimes requiring many years to cause death or a serious disabling of the system. Painters are sometimes affected with lead poisoning, due to small quantities of lead absorbed day by day for years. If a man were to take a considerable quantity of the poison at once, it might cause death in a few hours or days. Arsenic may be taken in very small doses day after day for many years without causing death, but it is no less a poison because it does its damage slowly.[a]

The italicized definition of a poison quoted above from the indorsed text-books is quite in harmony with the standard definitions of authorities. Calling alcohol a poison according to such a definition is very different from what the Cambridge statement says "is physiologically incorrect."

Alcohol and many other poisons are prescribed by physicians as medicines. Whether in such instances they "do harm" or "good" is for medical colleges, not the public schools to decide.

When two things are to be compared, all the facts about the points in comparison should be truthfully stated. To imply that the books teach what they do not teach and then to condemn them on that false representation is at least bad ethics.

The Cambridge definition seems to have been manufactured for the occasion. According to that definition there would be very few poisons. For instance, arsenic is often given as a medicine with results that are claimed to be good, but no one therefore wants it taken off the list of poisons.

Professor Pye-Smith, London, one of the physicians who signed this statement, said:[b]

The definition of a poison is not quite satisfactory. Arsenic and strychnine would be excluded, for they sometimes do good.

THE CAMBRIDGE STATEMENT AS TO ALCOHOL A FOOD.

The Cambridge statement says: [a] "The results of careful experiments show that alcohol," "taken in small doses, as indicated by the popular phrase 'moderate use of alcohol,'" "is oxidized within the body and so supplies energy like common articles of food."

THE INDORSED PHYSIOLOGIES' TEACHING AS TO ALCOHOL A FOOD.

"A certain amount of alcohol is undoubtedly oxidized and can be utilized for the production of energy for the body; but in the ordinary conditions of labor and exposure to which man is subjected, the benefit which the body can receive from it, in cases where enough alcohol to prove a practical factor in energy production is taken, is more than offset by the deleterious effect of the alcohol. The sum total of the effect is therefore harmful." [c]

As will be seen from the above quotations, the schoolbooks teach that alcohol may be oxidized and liberate energy and injure at the same time, hence that oxidation does not prove a substance to be a food.

This teaching of the school text-books, as we have seen, is the teaching of Professor Abel,[d] of Professor von Voit,[e] of Professor Kühne,[f] in the committee's report, and of Professors Schäfer and Gruber and many others in current medical literature.

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[a] New Century Series, "Elementary Anatomy, Physiology, and Hygiene," by Prof. W. S. Hall, Northwestern University Medical School, Chicago, p. 112.

[b] Vol. I, p. 73.

[c] New Century Series, "Anatomy, Physiology and Hygiene" for High Schools, by Dr. H. F. Hewes, Harvard Medical School, pp. 151–152.

[d] Vol. II, p. 159.

[e] Vol. I, p. 93.

[f] Vol. I, p. 90.

THE CAMBRIDGE STATEMENT AS TO THE MODERATE USE OF ALCOHOL.

The last point [*c*] of the Cambridge statement is:

"Briefly, none of the exact results hitherto gained can be appealed to as contradicting, from a purely physiological point of view, the conclusions which some persons have drawn from their daily common experience, that alcohol, so used, may be beneficial to their health."

THE INDORSED PHYSIOLOGIES' TEACHING AS TO THE MODERATE USE OF ALCOHOL.

"This evidence, which tends to show that the drinking of alcohol even in moderation is injurious, is best obtained in the investigation of the effects of this drinking upon two of the vital functions of the body, that of muscular work and that of maintaining the body heat.

"The end and aim of all the body processes is to work. To accomplish this end the body must keep warm. The more perfectly the body can accomplish these conditions the more able is the possessor of that body to make his way in the world. Now, alcohol, taken even in what is considered moderation, lessens the power of the body to work and maintain its heat supply."[a]

Professor von Voit, who was appealed to by the subcommittee, refused to sign the Cambridge statement, but wrote concerning the last sentence [*c*] that he would not object to signing it if it said:[b]

Judging from a purely physiological point no exact result can be mentioned which would oppose the views which many persons have drawn from their daily experience, namely, that alcohol consumed in the aforesaid manner *injures* their health. (Italics ours.)

That some persons have concluded from their own experience that alcohol is "beneficial" is not sufficient evidence for generalization. The individual's personal judgment concerning the effects of alcohol, which acts as a depressant upon the brain, is untrustworthy.

Professor Gruber and others have shown that some few persons are comparatively unsusceptible to alcohol, but whether or not one is susceptible can not be foretold. "He finds out only by playing a game of chance with his life, which is a dangerous experiment."[c]

AUTHORITIES WHO DIFFERED FROM THE CAMBRIDGE STATEMENT.

Some of the physiologists who attended the International Congress in 1898 signed the Cambridge statement as it was presented to them. Others either refused to sign it or made changes in it before doing so.

The changes made by some of the latter before signing are interesting as showing that those physiologists saw the weak places in it.

Prof. Hans Meyer, of Marburg, struck out the words "like common articles of food;" also the word "poison" and the three words following it.[d]

Thus this gentleman refuses to call alcohol a food and refuses to deny that it is a poison. His changes make that part of the statement as signed by him read:

Very much remains to be done, but thus far the results of careful experiments show that alcohol, so taken, is oxidized within the body and so can supply energy, and that it is physiologically incorrect to designate it as a substance that can only do harm and never good to the body.

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[a] New Century Series, "Anatomy, Physiology, and Hygiene," for High Schools, by Dr. H. F. Hewes, Harvard Medical School, p. 151.

[b] Vol. I, p. 94.

[c] Professor Gruber in Münchener Neuesten Nachrichten, May 19, 1903.

[d] Vol. I, p. 19.

Remembering that the above is the view of a physician, who naturally thinks of the possibility of using alcohol as a medicine, and remembering that the school text-books treat only the beverage use of alcohol, it will be seen that Professor Meyer's opinion offers nothing with which to contradict the school physiologies.

At the Antialcohol Congress held in Vienna, 1901, Professor Meyer said: "On account of its injurious action it [alcohol] can not suitably be considered a food." [a]

Professor von Voit, of Munich, who was among the European physiologists appealed to in 1897, but who did not reply and did not sign the Cambridge statement, was, it appears, appealed to again about it, for in December, 1898, he wrote the letter [b] the first sentence of which we have already quoted.

Prof. W. Kühne, of Heidelberg, who did not sign the Cambridge statement, said: [c]

> Indeed I consider the second paragraph [sentence] dangerous, as you will be understood to consider alcohol as a food and to recommend it as such.

Prof. J. Rich Ewald, of Strassburg, who also did not sign, said: [d]

> I would gladly have pleased you by signing it if I were not on principle in favor of the most stringent restrictions upon alcohol drinking.

To summarize briefly, therefore, the report of Professors Bowditch and Hodge claims that the scientific temperance instruction in the public schools "is not in accord with the opinions of a large majority of the leading physiologists of Europe as shown by the statement printed on page 18 [the Cambridge statement]."

Examination of this statement has shown that—

1. The Cambridge declaration that alcohol is oxidized in the body and so supplies energy does not prove the school text-books inaccurate. As has been shown, some of the subcommittee's own experimenters and some of the physiologists quoted by them testify that the mere fact of oxidation does not prove a substance a food. This is exactly what the indorsed books teach.

2. The declaration of the Cambridge statement as to alcohol a poison is based on an unreasonable and absurd definition of a poison which does not accurately represent the definition of a poison given in the indorsed physiologies, and therefore constitutes no proof that these books are unscientific in teaching that alcohol is a poison according to standard definitions of a poison.

3. An individual's personal judgment concerning the effects upon himself of alcohol, which acts as a depressant upon the brain, is untrustworthy, and the personal experience of a few people concerning the effects of a moderate use of alcohol can not be made a guide for the many, because, as Professor Gruber says, while some people may seem comparatively unsusceptible, no one can tell whether or not he belongs to that class without incurring the risk of forming the alcohol habit. The Cambridge statemant brings forward no proof that such moderate use may not lead to the alcohol habit, and therefore does not prove the indorsed text-books inaccurate in teaching that there is this danger in even the moderate use of alcoholic beverages.

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[a] Report of Eighth International Antialcohol Congress, p. 44.
[b] Vol. I, .p 93.
[c] Vol. I, p. 90.
[d] Vol. I, p. 82.

THE CHARGE OF MISQUOTATION.

The report of Professors Bowditch and Hodge says:[a]

We feel obliged in this connection to call attention to the manner in which scientific authorities are misquoted in order to appear to furnish support to "scientific temperance instruction." In the School Physiology Journal, Mary H. Hunt, editor, November, 1897, an editorial occurs entitled the "Findings of science." It reads in part as follows:

"During the past two years two important papers containing original investigations upon the effects of alcohol have been published in this country. In each case 'the writer had previously doubted the universal poisonous action of alcohol, and had openly expressed a strong belief in its food and stimulative value.' * * * As results of these investigations4however, Doctor Chittenden, of Yale University, finds that 'amounts of alcohol equal to 5 per cent are markedly injurious and retard digestion,' and Professor Hodge, of Clark University, arrives at the conclusion that 'alcohol always lowers working power and, in some degree, interferes with growth.'"

The sentences in the above paragraphs said to be misquoted were quoted from the Bulletin of the American Medical Temperance Association, and the grounds for the same, as far as the Chittenden experiments are concerned, are to be found in the tables recording the results of his test-tube experiments which were published in 1896. These tables show that digestive action was diminished, on an average, 4.1 per cent in all his experiments with 5 per cent alcohol on gastric digestion, 33 in number, and pancreatic digestion, with the same amount of alcohol, was diminished on an average 13.55 per cent.

The quotation referring to Professor Hodge's views at the time this statement in the School Physiology Journal was made were expressed by him as follows:[b]

Retardation of growth [of yeast] is directly proportional to the amount of alcohol. This is the unmistakable result of the entire series of experiments, fifteen in number.

The only true physiological expression of the value of an animal's or a man's life is the total amount of energy developed and utilized during its continuance.

During the second month after administration of alcohol, spontaneous activity of both Tipsy and Bum [the alcoholized dogs] became noticeably impaired. This gradually and steadily increased, until last spring it seemed to me, from daily observation, that the alcobolics were not much more than half as active as the normals.

Retardation in growth of yeast and depression of activity in kittens and dogs cast a suggestive light on the human experiment.

As to the quotation from Professor Liebig concerning the nutritive value of beer, cited in the report of Professors Bowditch and Hodge as an example of the "method of partial quotation of scientific authorities to serve the purposes of the Woman's Christian Temperance Union,"[c] it may be said that the Liebig statement appeared in an English edition of Liebig's works entitled "Familiar Letters on Chemistry," published in London in 1851, and has been repeatedly quoted by English writers. Since, in recent years, this statement has been challenged it has no longer been quoted in this school literature, and the request was made some time ago that it be expunged from future editions of books already on the market.

The temperance education movement is further charged[d] with practically yielding to temptation "to call 'scientific' everything that happens to agree with particular prejudices, and to relegate to the limbo of human error all the evidence that appears for the other side."

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[a] Vol. I, p. 35.
[b] Popular Science Monthly, March, 1897.
[c] Vol. I, p. 36.
[d] Vol. I, p. 23.

What is the other side? What evidence has been produced that the teachings of the indorsed physiologies are inaccurate? Certainly this subcommittee of the Committee of Fifty has produced no such evidence on the points concerning which they instituted investigation, as we have already shown, and as is further set forth in this reply. This does not mean that no change is ever needed or made in the indorsed physiologies. Like every other text-book, they are revised from time to time to keep them up to date. Such revision is proof per se that no real "evidence" is ever "relegated to the limbo of human error," as our critics charge.

The object of the temperance education movement is to have the children in the schools taught the laws of health, including those that relate to the use of alcoholic drinks and other narcotics. The friends of this movement have no personal habits to defend; no moneyed interests to safeguard. Their only motive is to save the people from the misery and the thralldom of drink. They have not been so blind as to think this could be done by promulgating error. They have continually asked that all errors in the teaching be pointed out in order that such may be properly corrected. They demand, however, that evidence, and not prejudiced or undemonstrated opinion, shall decide what is error and what is truth in this matter.

### FAILURE OF SUBCOMMITTEE TO PROVE INDORSED BOOKS INACCURATE.

Summing up the attempts of the subcommittee "to contradict" the teaching of the indorsed physiologies, we see that they tried four means: (1) Experimental investigation, (2) citations of old and unsubstantiated medical writers, (3) the opinion of physiologists obtained by special correspondence, and (4) signatures to a statement containing an absurd and unwarrantable definition of a poison.

By none of these means have they disproved the statements they attacked. And they do not claim that they have. They say:[a]

> It is no part of our present purpose to discuss the truth or falsity of these statements.

What, then, are they trying to do? They say:[a]

> We are endeavoring solely to present the teaching of alcohol physiology as it actually exists. It is clear how great is the disadjustment between this public school education and that in our colleges, universities, and medical schools.

We respectfully recommend that the subcommittee make a careful study of the experimental evidence on the alcohol question brought out by their own investigators (Abbott, Chittenden, Hodge, Welch, Abel, and Atwater), compare this with the work of other investigators in these fields, and this with the teaching of what they call their standard medical text-books.

When this is done, they will find that the "disadjustment" of which they complain is between recent experimental findings and the old medical literature into which the results of this recent work have not yet "found their way." The indorsed text-books are in harmony with recent evidence rather than with old opinion.

### THE LATEST TEXT-BOOKS IGNORED.

Under the heading "List of books examined" the subcommittee, ignoring all indorsed physiologies published since 1890, give[b] the

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[a] Vol 1, p. 31.

[b] Vol. I, pp. 29–30.

names and publishers of twenty-four school text-books, all of which were written from thirteen to twenty years ago.

Why, in the list of school text-books examined, does this committee ignore all the latest school physiologies, notably the New Century Series, the most carefully graded, up-to-date books, by authors who are thoroughly familiar with the recent discussions concerning the oxidation of alcohol, and who agree with Professors von Voit, Kühne, Abel, Gruber, and other recent writers that such oxidation does not prove it a food.

One of the earliest charges against this study was that the school text-books were written by mere collaborators, not by persons having suitable knowledge or scholarship. Are Professors Bowditch and Hodge absolutely silent about the New Century and other lately indorsed books because if they admit the existence of these books they must also admit that they were written by such authors as Henry F. Hewes, M. D., instructor in physiological chemistry in Harvard Medical School, Boston, Mass., and Winfield S. Hall, M. D., professor of physiology in Northwestern University Medical School, Chicago, Ill.?

The subcommittee of the Committee of Fifty, whose investigations were to be so exhaustive and candid as to command general confidence, should have known and recognized the existence of these new books.

### RECOMMENDATIONS OF THE COMMITTEE.

The physiological subcommittee nowhere show their imperfect knowledge of the education which they condemn more than when they attempt to advise as to what ought to be done. They say[a] in their conclusions, as though it were an entirely new suggestion:

> This teaching [regarding alcoholic drinks and other narcotics] should not be made a special isolated matter, but should be a part of some elementary instruction in physiology and hygiene.

Is it possible that after ten years of investigation the subcommittee does not know that this special instruction is and always has been a part of physiology and hygiene? The American people settled that question, some of them long ago, by legally requiring that such instruction should be given their children as a part of that very subject.

The subcommittee further suggests[b] teaching the children "that when [alcoholic drinks are] taken habitually it should be only at meals, and, as a rule, only with the last meal of the day." Such teaching implies approval of alcohol being thus taken.

Not until it is proved that alcohol thus drunk does not have the power to create an uncontrollable desire for more will such teaching ever be either scientifically or ethically safe.

Professors Bowditch and Hodge say this instruction fails[c] "to observe the distinction between the *diametrically opposite conceptions* of 'use' and 'abuse.'"[d] The assumption that "use" and "abuse" are opposites remains to be proved. Professor Fick said:[e]

> The line between the use and abuse of alcohol is so lightly drawn that the admonition to moderation has no settled, unequivocal meaning. * * * There are many

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[a] Vol. I, p. xxi.
[b] Ibid., p. xxii.
[c] Ibid., p. 44.
[d] Italics ours.
[e] Die Alkoholfrage, Wurzburg, 1892.

things whose use and abuse are very different, but there are other things whose use and abuse are the same, when use and abuse run into each other without a sharp dividing line. This, he says, is the case with such things as opium and alcohol, the use of which carries with it the temptation to abuse.

The indorsed text-books teach, as does science, that because of the power of a little alcohol to create an uncontrollable desire for more, use may lead to abuse and abuse to destruction.

The subcommittee say[a] that it does not seem to them desirable "to attempt to give systematic instruction to all children in the primary schools on the subject of the action of alcohol or of alcoholic drinks. To older children, and especially to those in the high schools, it does seem proper," etc. This plan would withhold such instruction from many children who are forced to become wage-earners before they have gone further than the primary grades, having been kept back perhaps by sickness or mental dullness, or, in the case of many children of foreign-born parents, by the necessity of learning the language before they can go on. These, therefore, will never receive this instruction if it is not given them in the primary grades. Such children are often those who most need it, having come from homes where there is little or no temperance teaching or example.

Simple facts in this line of instruction are needed by all primary pupils whether they leave school or not, to guide in the formation of right habits during the impressionable period and to give them the help they often need to resist temptation to form wrong habits.

The practical result of adopting the committee's suggestion to confine the instruction "to the older children, especially to those in the high school," would be to withhold it entirely from all primary grades and to leave it a matter of doubt as to which, if any, grades in the grammar school should receive it. In all cases where interest is lacking or lukewarm, the probability is that instruction would be given intermittently or not at all below the upper grammar grades or the high school, and thus be withheld from the vast majority of pupils who drop out of school before reaching those grades. The brewers and distillers have always opposed that feature in the temperance education laws which requires this study to be pursued "by all pupils in all schools," for they well know that this education given only to "the older children, especially those in the high schools," would leave uninstructed as to the dangers of beginning to drink a large army who might thus be easily induced to become their customers. Fasten the drink habit on a boy, and his future earning power is thereby mortgaged to the brewer and the distiller.

The final recommendation of the subcommittee is thus stated:[b]

> It should not be taught that the drinking of one or two glasses of beer or wine by a grown-up person is very dangerous, for it is not true.

Can this subcommittee prove that it is not true? Can they pick out the persons for whom it will not be "very dangerous?" Until they can we must not so teach. For every one in that mournful procession that every year goes down to a drunkard's grave there was a time when "one or two glasses of wine or beer was very dangerous," but he did not know it. He had never been taught it. How soon any moderate drinker may come to that hour no one can tell until it is too late. The physicians on the committee would not advise withholding

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[a] Vol. I, p. xxi, ¶ ix.

[b] Vol. I, p. xxii.

from the people the knowledge that typhoid fever germs in a town's water supply are "very dangerous." But the destruction that might follow an outbreak of typhoid fever would bear no comparison to the harvest of death that might result from the universal teaching that the drinking of one or two glasses of wine is not "very dangerous."

Professors Bowditch and Hodge charge [a] that this requirement of the people that their children shall have this instruction "is frankly and honestly the total abstinence reform." Is this the reason they oppose it? They have produced no evidence which disproves the fact that modern science supports total abstinence teaching.

The relation of moderate drinking to the alcohol question is well stated by Doctor Forel, who says: [b]

> As long as one drinks even just one glass a month one feels the irresistible need of excusing and defending that glass, and unconsciously one becomes an advocate of the alcohol habit.

Professor Bunge says: [c]

> It is a fatal mistake to suppose that slaves to alcohol are only those who lie in the gutters. There are numberless men who always drink one moderate glass. To this moderate glass, however, they cling quite as inveterately as the morphinist to his syringe. These men are, and remain, the unrelenting enemies of the abstinence movement.

Professor Gruber calls moderate drinkers [d] "decoy birds for the unwary."

The children of this country must not be sacrificed to false teachings in favor of moderate drinking. The Committee of Fifty have not secured the repeal of the law, written in the very nature of alcohol, which gives it the inherent power, even in small quantities, to create an uncontrollable desire for more. A course of study in temperance physiology on the plan of the physiological subcommittee of the Committee of Fifty would do little to free the nation from the peril of coming generations debauched by alcohol. Seed planted in the minds of the children to-day will come to fruitage in the lives of the men and women of to-morrow. It is therefore the duty of every patriotic American citizen to insist upon planting in the minds of the children the seeds of the utmost truth against alcohol that science and experience warrant.

## Part II—Concerning Experimental and Other Investigation Regarding the Physiological Action of Alcohol.

### PROFESSOR ABEL ON THE PHARMACOLOGICAL ACTION OF ALCOHOL.

Have the experimental, laboratory, and other researches of the Committee of Fifty proved that alcohol is a food, that it is not a poison, or that moderate drinking is safe? If not, such teaching would be nothing less than crime.

In searching for the answers to these vital questions, we turn first to the report of Prof. John J. Abel, M. D., of Johns Hopkins University, on "The pharmacological [drug] action of ethyl alcohol." This report reviews the previous literature and his own experiments on a number of the fundamental points which are treated in the school physiologies.

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[a] Vol. I, p. 23.
[b] American Journal of Insanity, October, 1900, p. 316.
[c] Vol. I, p. 77.
[d] Münchener Neuesten Nachrichten, May 19, 1903.

CONCLUSIONS THAT COINCIDE WITH THE TEACHINGS OF THE INDORSED PHYSIOLOGIES.

Some of Professor Abel's conclusions are as follows:

1. That the so-called adulterations of liquor are of minor importance. He says:[a] "Ethyl alcohol[b] alone is poisonous enough to account for all the evils of intemperance." This explodes the idea that if pure liquors only were drunk the evils of intemperance would be prevented.

The indorsed physiologies are in harmony with Professor Abel on this point.

2. He finds that experimental evidence does not support the old notion that alcohol is a stimulant.[c] He classes it as a narcotic poison.

This is the teaching of the indorsed physiologies.

3. Of the effect of alcohol while engaged in brain work, he says:[d]

Alcohol is not found by psychologists to increase the quantity or vigor of mental operations; in fact, it clearly tends to lessen the power of clear and consecutive reasoning. In many respects its action on the higher functions of the mind resembles that of fatigue of the brain.

Thus there is no foundation for the idea that alcohol is a help in brain work.

The indorsed physiologies so teach.

4. Professor Abel says of alcohol as an aid to muscular work:[e]

We have no experimental grounds for believing that small or very moderate quantities of alcohol exercise any beneficial direct action on the muscles of men and warm-blooded animals.

He further says:[f]

Both science and the experience of life have exploded the pernicious theory that alcohol gives any persistent increase of muscular power.

It is to be hoped that this "pernicious theory" will stay exploded.

The indorsed physiologies have long taught the inaccuracy of this theory.

5. Professor Abel expresses the opinion that:[g]

Alcohol is not a practicable food in the sense in which fats and carbohydrates are foods.[h]

In this the teachings of the indorsed books are confirmed.

6. Professor Abel in his paper repeatedly uses the word poisonous describing alcohol. In defining a poison, he says:[i]

According to scientific usage any substance is called a poison which, when incorporated into the blood, or even when applied to the mucous membranes and other surfaces, in relatively small amounts, causes disturbance in any function of the body.

His teachings plainly show that alcohol, in the amounts ordinarily used as a beverage, does disturb bodily function, and, therefore, accord-

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[a] Vol. II, p. 30.
[b] The common alcohol of fermented and distilled liquor.
[c] Vol. II, pp. 55, 61, 91, 92.
[d] Ibid., p. 141.
[e] Vol. II, p. 146.
[f] Ibid., p. 165.
[g] Ibid., p. 158.
[h] The carbohydrate foods are those containing sugar and starch. The latter makes up a large part of all grain and potatoes. They are called fuel foods because when broken up in the body they yield heat which may be used to warm the body or as energy for muscular work.
[i] Vol. II, p. 5.

ing to his own definition, is a poison, for speaking of taking alcohol during the performance of the duty in hand, he says:[a]

> In all those avocations of life where keen senses, sharp attention, the ready and immediate action of clear judgment, or great concentration of the mind are called for, alcohol in any form or amount is injurious.

This shows that according to his own definition alcohol is a poison. The indorsed physiologies teach that alcohol is a poison.

In the same connection they define a poison as "Any substance whose nature it is when absorbed into the blood to injure health or destroy life." This is substantially the definition of a poison[b] given by Alfred Swaine Taylor, M. D., F. R. S., lecturer on medical jurisprudence in Guy's Hospital, London, and closely resembles Professor Abel's definition given above. Under this definition Professor Taylor classes alcohol as a poison, as do the indorsed physiologies.

The indorsed physiologies in teaching that alcohol is a poison are speaking of the amounts commonly used for beverage purposes. Professor Abel says:[c]

> It is often assumed that a substance which is ordinarily called a poison must have, even in the smallest quantity, an injurious effect.

The smallest quantity might be one drop reduced to the third decimal. No indorsed physiology teaches what the effects of "the smallest quantity" would be. What these books do teach is that alcohol is a poison because in the amounts in which it is usually drunk it is capable of causing disturbance in the functions of the body which, according to Professor Abel,[d] is the characteristic of a poison. Professor Abel's paper furnishes no evidence that the indorsed text-books are wrong in teaching that alcohol is a poison, according to his own rational definition of the word poison.

### A SERIOUS OMISSION.

After Professor Abel has presented the conclusions of science which correct so many fallacies leading to the drinking of alcoholic liquors, it is to be regretted that he makes the following statement concerning the taking of wine at dinner, at the close of the day's toil,[e] without at the same time pointing out the danger which inheres in such a practice:

> The man who is so happily constituted that he can hold to a golden mean will not exceed his half pint of wine, even when he has no better reason for his indulgence than that he likes its taste and its mild mental effect.

Professor Abel is doubtless aware that one explanation of this "mild mental effect" is that it is the beginning of that depressant action of alcohol on the higher mental functions which he has himself described as follows:[f]

> We have seen that alcohol from the very first has a depressant action for higher mental functions.

One of the highest functions of the brain is the ability to exercise self-control, which is one of the first weakened by alcohol. It is this power the drinker needs to enable him to "hold to a golden mean." If, in speaking of the habit of taking a half pint of wine at dinner after

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[a] Vol. II, p. 165.
[b] A Treatise on Poisons, p. 18.
[c] Vol. II, p. 159.
[d] Ibid., p. 5.
[e] Ibid., p. 166.
[f] Ibid., p. 165.

the day's work is done, he had in the same connection pointed out the power of the alcohol in the wine to create an alcoholic appetite, and that no one can tell in advance whether or not he is unsusceptible to that power, and if he had also pointed out the fact that this "half pint of wine" is the amount which Professor Chittenden found to be "highly inhibitory" of digestive processes,[a] Professor Abel would have presented fairly both sides of the question. But it is not fair to the whole truth, nor fair to human beings, to leave these facts untold in connection with a discussion of the custom of drinking half a pint of wine with the evening dinner. He has not proved that there is no danger in a moderate use of wine or other liquor, and therefore has not proved that the indorsed text-books are unscientific in teaching that the so-called moderate use of alcoholic drinks is unsafe.

### PROFESSOR ATWATER ON THE NUTRITIVE VALUE OF ALCOHOL.

Professor Atwater's paper on "The nutritive value of alcohol" occupies 205 pages in Volume II of the report of the physiological subcommittee.

Judging from this paper, his views concerning the results of his experiments have undergone considerable revision and modification since his first report came out in 1899.

For example, he now admits[b] that alcohol is inferior to carbohydrates and fat as a protector of body protein. In 1899 he said[c] that it "protected the materials of the body just as effectively as corresponding amounts of sugar, fat, and starch."[c] Even yet he appears to claim more in respect to protection than his experiments fully warrant.[d]

### YIELDING OF ENERGY BY A SUBSTANCE NO PROOF THAT IT IS A FOOD.

He now says[e] that a distinction must be made between alcohol as a source of muscular energy and as a food for muscular work. Formerly he said nothing about such a distinction.

This is an important point and comes very near being the reason why leading physiologists like Professors von Voit, Kühne, and others will not call alcohol a food. They say alcohol may be a source of energy and yet be harmful. When they say harmful they do not mean

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[a] Half a pint of sherry is no unusual allowance, and this in a total gastric charge of 2 pounds amounts to about 25 per cent, which the table shows to be a highly inhibitory proportion. (Vol. I, p. 190.)

[b] Vol. II, pp. 275, 276, 305.

[c] U. S. Dept. of Agriculture, Circular 357.

[d] Dr. F. Gowland Hopkins, University of Cambridge, England, says of Professor Atwater's experiments: "It is unfortunate, too, that these results [the ones that gave most evidence in favor of alcohol] were obtained upon the least satisfactory of the subjects [the one who was accustomed to alcohol] and that a fortnight should have elapsed between the observations made without alcohol and those with." * * * The comparison was, therefore, unsatisfactory, because the physiological condition of the body and its corresponding dietetic needs might have altered in the interval, whereas the validity of the comparison would require that they should be the same. (Medical Temperance Review, Aug., 1903, pp. 229, 232.)

Professor Atwater admits (Vol. II, p. 252) that there is no experiment with this subject in which an alcohol diet immediately preceded or followed a diet furnishing the same amount of energy from ordinary food materials without alcohol.

[e] Vol. II, p. 300.

in the way an excess of food is harmful. They mean just what Professor Atwater brings out when he repeatedly emphasizes the necessity of making a clear distinction between the drug action and the nutritive action of alcohol.[a]

In his first report he based his claim for the food value of alcohol on the fact that it could be oxidized or burned in the body and furnish energy which the body could use for warmth or work.

But other physiologists say that a substance which does harm while it is furnishing energy can not justly be called a food. Especially is this the case with a substance like alcohol whose power for harm is of far greater importance than the small amount of energy it can furnish.

Doctor Forel says:[b]

> We do not deny that a part of the alcohol ingested undergoes combustion. But the question is, who is the victim of the combustion? * * * What does it avail that a little alcohol burns in the body if, in burning, the mischief it does exceeds the nourishment it furnishes? * * * One may no more speak of the nutritive effects of alcohol than of arsenic or other toxic substances.

Like the man who saw but one side of the shield, Professor Atwater seems hitherto to have been looking only at one side of this question—alcohol as a source of energy—without balancing over against it the amount of harm it may do at the same time.[c]

Professor Schäfer, of University College, London, says:

> It can not be doubted that any small production of energy resulting from the oxidation of alcohol is more than counterbalanced by its deleterious influence as a drug upon the tissue elements, and especially upon those of the nervous system.

Professor Abel, one of the committee's chosen investigators, puts this very tersely when he says:[d]

> The mean oxidizable amount [of alcohol] can be shown to have various untoward effects.

### PROTECTION OF FAT BY A SUBSTANCE NO PROOF THAT IT IS A FOOD.

Professor Atwater brings forward as one evidence that alcohol is a food the fact that it often protects, or causes an accumulation of fat in the body.[e] In medical literature the tendency of drinkers to accumulate fat is looked upon as an indication of harm. It tends toward fatty

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[a] Vol. II, pp. 191, 193, 287, 300, 307, 309.

[b] Report of Seventh International Congress Against the Abuse of Alcoholic Drinks, Paris, 1899, p. 12.

[c] Professor Gruber, president of the Royal Institute of Hygiene, in Munich, figures out this balance between alcohol as a source of energy and its drug action in this way: "Thirty grams of alcohol, amounting to about three-fourths of a liter of strong beer, liberates by its oxidation about 216 calories (heat units). This is of utter insignificance when compared with the daily needs of a man at medium work, which calls for about 3,000 calories of energy. This small amount [it is less than one-half the amount used per day in Professor Atwater's experiments], as can be indisputably established by exact measurements, lowers mental working ability remarkably for a long time afterwards, proof certainly that the brain is injured by its action."

Professor Gruber is not the only physiologist who has been able to strike a balance between alcohol "as a source of energy" and its "drug action."

[d] A Text-Book of Physiology.

[e] Vol. II, p. 159.

[f] Ibid., pp. 301, 302.

degeneration of the organs, and hence is no proof that alcohol is a food.[a]

The sparing of fat is not sufficient ground for calling alcohol a food.

Professor Hans Meyer said at Vienna, 1901: "By its oxidation in the body alcohol can spare fat and carbohydrate, but apparently not proteid. However, on account of its injurious action in other respects, it can not properly be considered a food."

## ATTEMPTS AT DEFINING A FOOD.

A great teacher once said, "If you would have clear ideas stick to definitions."

Professor Atwater's use of ordinary words in a technical sense, without explaining the difference in meaning as he uses them from what the public understands by them, has been the cause of extravagant and unfortunate misconceptions.

One instance of this is his use of the word "value" in speaking of the "food value" or "fuel value" of alcohol. The term "value" conveys to most people the idea of usefulness, whereas what Professor Atwater means by the term "fuel value" applied to alcohol is the amount of energy or heat produced by its oxidation in the body.[b] Whether alcohol is thus useful to the drinker depends upon whether or not it is at the same time doing harm to some part of his body.

Professor Atwater in his first report said that whether or not alcohol is a food depends on the definition of a food. Yet he gave no difinition, and for that was justly criticised.

In the present report he says "Is alcohol a food? The answer to that question depends upon the definition of food." Such a statement leads one to expect that a straightforward definition of a food will follow, a definition which will include all that belongs to the subject defined and exclude all that does not pertain to it.

Instead, we find four shifty suppositions which fail to exclude what does not belong to the subject and to include all that does.

## AN ESSENTIAL CONDITION OMITTED.

The first of these shifty suppositions is:[c]

"If we define food as that which, taken into the body, either builds tissue or yields energy, alcohol is food, but it is a very one-sided food.

If any substance that yields energy to the body is therefore a food, then carbolic acid is a food, for it can be oxidized in the body and yield energy.

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[a] Dr. Benjamin Ward Richardson said (Ten Lectures on Alcohol, p. 121): "If we could successfully fatten the body we should but destroy it the more swiftly and surely, and as the fattening which follows the use of alcohol is not confined to the external development of fat but extends to a degeneration through the minute structures of the vital organs, including the heart itself, the danger is fully apparent."

The same opinion was expressed in 1900, in briefer terms, by Doctor Colla, of Finkenwalde, who says: "The accumulation of fat from the use of alcohol is recognized as a symptom of degeneration."

[b] Professor Atwater says: "The available energy is the energy of the material actually oxidized, and is taken as the measure of the fuel value." (Vol. II, p. 305.)

[c] Vol. II, p. 314.

If he had said, that a substance which builds tissue or yields energy without harming the body is a food, he would have given the essentials to a definition of a food,[a] but his definition would have excluded alcohol, for it is the nature of alcohol to do harm, as he admits when he says that its drug action is its most important one.

AN ESSENTIAL SUBSTANCE RULED OUT.

His second shifty supposition is:[b]

> If we confine the word food to materials which like bread and meat contain protein and build nitrogenous tissue, alcohol is not food; neither is starch, which is the chief constituent of such food materials as wheat, corn, rice, potatoes, and makes up the larger part of the food of man.

This is an absurd supposition. The meaning of the word food should not, of course, be confined to such materials as contain protein to the exclusion of the energy furnishing foods, the starches, sugars, and fats.

CHARACTERISTIC ACTION OF ALCOHOL CONFOUNDED WITH EXCEPTIONAL ACTION OF MEAT.

His third shift supposition is:[c]

> If we exclude from the list of foods those things which are either injurious to health or tend to become so, we must exclude alcohol, in excess, but we must do the same thing with meat.

This is sophistry, pure and simple.

The supposition that we should exclude from the list of foods those things that are injurious to health or tend to become so is all right. It would, as he says, exclude alcohol, "in excess" and otherwise, but he is wrong in saying that "we must do the same thing with meat." It is the nature of meat to nourish the body without injuring it, while it is the nature of alcohol, through what Professor Atwater himself calls its "drug action," to injure some portion of the body, especially the nervous system, although it may at the same time be liberating energy.

If we compare the results of "excess" of alcohol with "excess" of meat, the difference in the nature of the two substances is still more marked. Professor Atwater himself says[d] "excess of alcohol is worse than excess of ordinary food." It is far worse, from the fact that the body possesses a natural safeguard against excess of food in the feeling of satiety. The characteristic action of alcohol is to blunt the sensibilities that might otherwise give warning. It creates no feeling of satiety, but the desire for more of itself, which Professor Atwater says "is apt to come with the using."[e]

Professor Atwater repeatedly charges his readers to keep in mind the distinction between the nutritive action and the drug action of

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[a] Doctor Hopkins, already referred to, says: "There is no reasonable definition of a foodstuff—even of an academic sort—which would not be strained if made to cover a substance which, in the course of supplying the tissues with energy, does them serious damage. If alcohol is to be classed as a foodstuff, it can be only when it is shown that, under the right conditions of administration it, to all intents and purposes, ceases to exert its toxic action." (Medical Temperance Review, Aug., 1903, p. 233.)

[b] Vol. II, p. 314.

[c] Ibid.

[d] Vol. II, p. 314.

[e] Ibid., p. 309.

alcohol, and he has told us which is the most important and which is the least important action. If he will make the same distinction between the most important and the least important action of meat, he will see why power to harm excludes alcohol but does not exclude meat from the list of foods.

### AN ILLOGICAL CONCLUSION FROM A GOOD DEFINITION.

His final supposition concerning a definition of a food is:[a]

> If we consider in the list of foods all substances which may serve the body for nutriment, and which may be thus utilized in considerable quantities without sensible disturbance of normal bodily functions, alcohol must be included.

Here is a good definition of a food, but it does not include alcohol, because careful observations with precise tests, with quantities of alcohol too small to furnish appreciable amounts of energy, have shown disturbance of bodily functions. Doctor Forel says that activity of muscles as well as concentration and correctness of thought is disturbed by as small a quantity as from 7 to 10 grams (2 to 3 teaspoonfuls).[b]

If by "considerable quantities" Professor Atwater means such doses as he gave in his own experiments (12 grams), it will be seen that he has no grounds for assuming, as he does, that alcohol may be utilized in considerable quantities without sensible disturbance of bodily functions, because, as he admits,[c] his experiments made no tests as to the effects of alcohol upon the nervous system or upon health and welfare. The drinker may not be "sensible" of any impairment of bodily functions, because the narcotic action of alcohol disqualifies him for observing its ill effects upon himself.[d]

Professor Atwater's whole attempt to prove alcohol a food, either by experiment or by juggling with definitions, is an absolute failure.

### INSIDIOUS LAUDATION OF CONVIVIAL DRINKING.

Professor Atwater dwells[e] with an inviting unction on what he terms the "highly prized," "exhilarating effect" of convivial drinking, which "gladdens the heart of man" and is manifested "in the sympathy and help to social intercourse which the social glass affords."

But according to Doctor Forel, "Whenever alcohol promotes sociability and loosens the tongue, it is the consequence of cerebral intoxication."

According to Professor Atwater, however, "How much alcoholic beverages are really worth for these purposes, and whether, in a given case, the advantage counterbalances the danger of excess, are questions not to be answered by hard and fast rules."

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[a] Vol. II, p. 314.

[b] Vol. I, p. 85.

[c] Vol. II, p. 283.

[d] Prof. W. S. Hall, Northwestern University Medical School, quotes, as a summary of the experimental work on this subject, the following from Doctor Lauder-Brunton: "Alcohol increases the reaction time, the time for discrimination, and the time for decision. It makes all the nervous processes slower, but, at the same time, it has the curious effect of producing a kind of mental anæsthesia so that all these processes seem to the person himself to be quicker than usual, instead of being, as they really are, much slower. Thus a man, while doing things much more slowly than before, is under the impression that he is doing things very much more quickly." (Journal American Medical Association, July 14, 1900.)

[e] Vol. II, p. 315.

Whether the advantage counterbalances the danger can be determined by each individual only at the risk of forming the appetite which will hold him hard and fast to one of the worst fates a human being can invoke.

### PROFESSOR CHITTENDEN ON THE EFFECTS OF ALCOHOL UPON DIGESTION.

By common consent the lay prescription of alcohol as a medicine is condemned. Hence all discussion as to its medical value is out of place in a physiology for the public schools. Whether it is advisable for the physician to prescribe alcohol is, therefore, left to medical colleges. While that phase of the subject is not treated in these books, they do seek to correct the common but mistaken idea that the use of alcoholic liquors with meals is an aid to digestion.

On this subject the school physiologies are in accord with the teachings of the latest edition of Professor von Bunge's classical work on Physiological Chemistry which was issued the same year that Professor Chittenden's final experiments were published, 1898. Professor von Bunge says:

> The notion is very prevalent that alcoholic drinks promote digestion. In reality the opposite in the case. * * * The inhibitory influence of alcoholic drinks—and, indeed, of even moderate amounts of beer or wine—upon digestion has been proved on a patient with a gastric fistula [an opening in the stomach] and on many others by the aid of the stomach pump and by numerous other experiment.[a]

The erroneous notion that alcohol aids digestion should be corrected because it leads many to form the habit of using alcoholic drinks who might not otherwise do so.

### TEST-TUBE EXPERIMENTS SHOW GASTRIC DIGESTION RETARDED BY ALCOHOL.

Some of Professor Chittenden's experiment's were published in 1896, the remainder in 1898. The first of these experiments, on the effects of alcohol upon gastric or stomach digestion, were carried on with artificial gastric juice outside of the body, in laboratory test-tubes. The tables of these experiments show that whenever an amount of alcohol or alcoholic drinks equivalent to four-fifths of a wineglassful at a meal (5 per cent of the stomach contents) was used, a diminution of the digestive process always followed; that is, a smaller proportion of the food was digested in a given time.

A careful study of Professor Chittenden's use of the word "small" or "large" as applied to quantity is here necessary in order that one may not be misled by the indefinite expressions "small quantities" and "large quantities" occurring frequently is this report. He says:[b]

> Wines as a class, taken in small amounts, have little or no deleterious influence upon the chemical processes of gastric digestion. In small amounts they may even increase somewhat the rate of digestive action owing to the alcohol, and perhaps other substances, contained in them.

There were only four experiments with wine that showed any increase whatever of digestive action. In each of these cases the proportion of wine to the rest of the matter in the test-tube was 1 per cent, a proportion that would be reached when a person took a little

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[a] Text-Book of Physiological and Pathological Chemistry, by G. von Bunge, Leipzig, 1898, pp. 134, 135.

[b] Vol. I, p. 195.

less than four-fifths of a tablestpoonful of wine at a meal.[a] One experiment with this amount showed no change in digestive action. All the others with this amount (five in number) showed a decrease in digestive action ranging from about 1.4 to 8.9 per cent. The only amount of wine, therefore, that could be said to have "little or no deleterious action" and even to increase the rate of digestive action, was never more than the equivalent of four-fifths of a tablespoonful at a meal. These are manifestly amounts which the average moderate winedrinker would consider practical abstinence. Thus six out of these ten experiments showed either no effects or deletorious effects.

If, therefore, by "small quantity" Professor Chittenden means the above amounts, what is he to be taken to mean when he says:[b]

> In larger quantities they have more or less of a retarding effect upon gastric digestion.

Here again we must turn to his tables to see what he means by "large amounts," and we find that after the experiments with 1 per cent just referred to, the next test was with an amount of wine equal to 3 per cent of the contents of the test tube, which would be equivalent to about half a wineglassful at a meal. His tables showed that this amount of wine decreased the action of the digestive fluid in every case. There were 10 of these experiments with 3 per cent of wine. The average digestive action in these was 94.7, as compared with 100 without wine.

Experiments with 7 per cent of wine, equal to about 1⅛ wineglassfuls at a meal, reduced the digestive action to 91.2 with claret, and to 77.1 with sherry, as compared with 100 without wine.

Therefore, amounts anywhere between one-half a wineglassful and 1⅛ wineglassfuls of wine at a meal is what Professor Chittenden must be taken to mean when he says "large quantities."

Again, in speaking of malt liquors, he says that when used "very freely with the meals, so that the digesting mass in the stomach contains 50 or 60 per cent of these fluids," the retarding action "must be very considerable."[c]

One pint of beer with a full meal would furnish 50 per cent of the stomach contents during digestion, according to the estimate of the stomach contents which Professor Chittenden adopts.

Following this it is stated that "taken in small quantities, on the other hand, these malt liquors are without any marked effect" upon gastric digestion. How small a quantity? we ask again; and again can learn only from his tables that "small quantities of beer" must mean less than a wineglassful, for in every instance but two his tables show that with an amount of malt liquor equal to 3 per cent of the stomach contents, equivalent to about half a wineglassful at a meal, the rate of digestion was decreased. The equivalent of four-fifths of a wineglassful of beer (5 per cent of the stomach contents) reduced the rate to 97.8, and the same amount of ale reduced it to 92, as compared with 100 when water only was taken.

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[a] Professor Chittenden adopts Sir William Roberts's estimate of the digesting mass in the stomach at meal time as 2 pounds, and half a pint of wine as 25 per cent of the stomach contents (Vol. I, pp. 175, 190). On this basis, four-fifths of a wineglassful would equal 5 per cent of the stomach contents, and a trifle less than four-fifths of a tablespoonful would furnish 1 per cent of the stomach contents.

[b] Vol. I., p. 196.

[c] Ibid., p. 204.

As has been noted, all of Professor Chittenden's experiments mentioned above were in test tubes, not in the living stomach.

Alcohol causes the stomach to pour out an increased amount of gastric juice. The theory has been that this increased output of gastric juice might even more than counterbalance the slowing effect of alcohol and thus shorten the time of digestion. The test of this theory is the result of experiments on digestion in the living stomach.

### DOG EXPERIMENTS SHOWED DIGESTION AS A WHOLE RETARDED BY ALCOHOL.

In 1898 Professor Chittenden's report of such tests was published. The account told of experiments performed on two dogs, dog A and dog B, which were fed a certain quantity of meat, and with it were sometimes given water and sometimes alcoholic drinks of various kinds. Every fifteen minutes or so, while digestion was going on, some of the contents of the stomachs of the dogs was drawn off and examined. In all, there were 12 experiments in which the dogs took only water with their meat, and 19 in which they took some form of alcoholic drink.

Five of the water experiments and 5 of the alcohol experiments are marked as "strictly comparable"[a] because "they were carried out in succession on the same day."

In all but one of the pairs of "strictly comparable" experiments, digestion with alcoholic liquors took half an hour longer than digestion in the corresponding water periods. The one exception took 15 minutes longer with alcohol.

With dog A there were 9 experiments in which water only was given with his dinner of meat. The average time of digestion was 2 hours and 40 minutes.[b]

Five experiments in which the dog took pure diluted alchohol with his meals averaged 3 hours and 20 minutes, which was a slowing of digestion of 40 minutes. Five experiments with weak alcoholic drinks gave an average of half an hour longer than was required for digestion when he took only water.

Five other experiments with strong alcoholic beverages gave the same average time for digestion as those without alcohol. But among these was one belonging to one of the pairs of experiments which Professor Chittenden designated as "strictly comparable." This one with alcohol took half an hour longer to complete digestion than its corresponding experiment without alcohol.

With dog B there were not so many experiments. Three without alcohol gave 3 hours and 15 minutes as the average time required for digestion. Two with alcohol took 15 minutes longer, i. e., 3 hours and 30 minutes. Two with weak alcoholic liquors averaged a shorter time than the water period, but one of them, which belonged to one of the "strictly comparable" pairs, took 30 minutes longer than its corresponding water experiment. The other, which had no strictly corresponding period without alcohol, took the exceptional time of only 2 hours. Of course no general conclusion could be drawn from this one experiment, especially as the same class of liquors with the other dog averaged a slowing of half an hour.

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[a] Vol. I, pp. 293–294. [b] Vol. I, p. 294.

After a careful examination of all Professor Chittenden's tables his conclusions seem like mild irony. He says:[a]

> The results obtained suggest, possibly, a tendency toward prolongation of the period during which the meat remains in the stomach when alcoholic fluids are present.

Again he says:[b]

> Of hastened digestion the results obtained give little or no positive suggestion.

Assuredly there is "little suggestion" of "hastened digestion" in delays of from 15 to 40 minutes.

The point which Professor Chittenden does emphasize is "the rapid disappearance of alcohol from the stomach,"[c] and he figures[d] that 6 to 8 grams of alcohol (about the amount contained in 1 wineglassful of wine) would disappear from the stomach in half an hour. But there are other substances even in pure wine that retard besides alcohol. No evidence was found to show that these are quickly absorbed, while the dog experiments proved that the alcohol used did not disappear quickly enough to prevent a considerable slowing of digestion as the final outcome.

One fact to which Professor Chittenden repeatedly calls attention, and which is truly noteworthy, is that when digestion is proceeding feebly, or when the gastric fluid is weak, then the slowing effect of the alcohol is far more pronounced. The natural inference from this is that the person whose digestion is weak enough to need "aiding" is the one whose stomach processes are most likely to be retarded by alcohol.

Another objection to all acid alcoholic beverages, especially sour wines, is their retarding action on salivary digestion. This, the experimenter says,[e] "must always be a menace to the thorough and vigorous digestion of farinaceous foods by the saliva," to which he adds:

> This obviously may be a matter of little moment to a vigorous person with abundant digestive resources, but to the weak and ailing individual with scant digestive powers it may be a matter of vital importance.

The "weak and ailing individual" is just the one who is apt to resort to the use of wine, thinking it will better his digestion.

Another fact of importance is that Professor Chittenden's experiments tell nothing of the results of long-continued excitement or irritation of the digestive organs by alcoholic drinks. Medical experience finds that—

> The more or less constant use of alcohol will produce congestion of the mucous membrane and faulty gastric secretion.[f]

The record of his experiments shows that Professor Chittenden found nothing with which to contradict the statement of the indorsed school physiologies that alcoholic drinks are a hindrance, rather than a help, to digestion.

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[a] Vol. I, p. 294.
[b] Vol. I, p. 300.
[c] Vol. I, p. 300.
[d] Vol. I, p. 301.
[e] Vol. I, p. 155.
[f] Henry Martin Bracken, M. D., professor of materia medica, therapeutics, and clinical medicine, University of Minnesota, in International Clinics, October, 1898, p. 3.

### DOCTOR BILLINGS ON USE OF ALCOHOLIC DRINKS BY BRAIN WORKERS.

Thirty-three pages of the report of the physiological subcommittee in Volume I are given to Dr. J. S. Billings's paper on the use of alcoholic drinks by brain workers in the United States. The materials for this report were secured by sending 1,500 letters to "men engaged in mental work of a high class." A little over one-half of them, 892, called forth a reply. The reader is left to infer from these replies what questions were asked in the letters.

A noteworthy fact is that although more replies were received from the total abstainers (167) than from the regular users (146), as shown from the table on page 311, the opinions of the abstainers are definitely quoted in only nine of the answers published, while the views of the regular users are spread out in at least 45 of the published replies. The opinions of the nonabstainers seem to have been based on personal sensations following the use of alcoholic beverages. Such sensations are not trustworthy, for the narcotic action of alcohol so deadens the senses that they are not reliable reporters. It is not, therefore, surprising that this subcommittee of the Committee of Fifty, in summing up the testimony in these replies, should say:[a]

> The opinions of these men [who replied] as to the effects of alcoholic drinks in general have little or no scientific value, but are of interest as showing that the use of such drinks to stimulate mental effort gives, on the whole, bad results.

That alcohol interferes with brain work is just what the indorsed school physiologies teach.

### DOCTOR BILLINGS ON RELATION OF DRINK HABITS TO INSANITY.

The above is the title of a brief paper compiled for the subcommittee by Dr. J. S. Billings.[b]

From his tables it appears that 39.03 per cent of the insane reported from certain selected sources were abstainers. Of cases reported from insane asylums 24.08 per cent were considered to be due to alcohol.

The report is by no means complete, as only a small proportion of the blanks sent out were returned with answers. The drink habits of 20 per cent were not ascertained.

### PROFESSOR HODGE ON THE INFLUENCE OF ALCOHOL ON GROWTH AND DEVELOPMENT.

Professor Hodge gives[c] the result of the effects of minute traces of alcohol upon the growth of yeast in the following description of a diagram illustrating those effects (italics ours):

> The diagram at the right in the figure expresses the same result as a race, a competitive effort, in which the cultures containing no alcohol are seen to win, the others falling below proportionately to their alcohol content. Fig. 2 is a similar expression for the third series of experiments. The method of uniformly seeding the cultures had not been perfected; still the same general effect is apparent. *And this is the unquestionable result in all the experiments, fifteen in number.*

Experiments on dogs showed no traces of stunted growth. When it came to the offspring of the alcoholized dogs, however, examination of their brains after death showed marked traces of lack of development

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[a] Vol. 1, p. xx. [b] Vol. I, pp. 341–355. [c] Vol. I, p. 361.

as compared with the progeny of the normal dogs.[a] Professor Hodge's final conclusion is:[b]

> Considered in relation to the general literature of the subject, our experiments supply additional evidence to prove that alcohol in small amounts exerts an inhibiting or sedative influence upon certain physiological processes. This is seen in its effect in slowing the growth of yeast, and, while bodily growth has not been interfered with under the conditions of most of our experiments, it is plainly indicated in lowering the normal activities of animals to which it has been administered.

Professor Hodge's report brings out some striking facts as to hereditary influence of alcohol. He says:

> Possibly the most important of our results relates to the vigor and normality of offspring.

His report contains[d] diagrams and tables showing the influence of alcohol on the progeny of dogs. Only 17.4 per cent of the puppies of alcoholized dogs were viable, against 90.2 per cent of the puppies of normal dogs. It is interesting to note that Professor Demme obtained almost exactly the same rate of normal offspring, 17 per cent as over against 88.5 per cent, from comparative observations on ten alcoholic and ten nonalcoholic human families.

This is a double confirmation of the teaching of the indorsed books that the evils of alcoholic drinks are not confined to the drinker, but often descend to his children.

### DOCTOR ABBOTT ON THE INFLUENCE OF ACUTE ALCOHOLISM ON NORMAL VITAL RESISTANCE OF RABBITS TO INFECTION.

The influence of acute alcoholism on the normal vital resistance of rabbits to infection is the concluding paper in Volume I. It is the report of Doctor Abbott, of the University of Pennsylvania, published in the Journal of Experimental Medicine in 1896, and furnishes evidence for the following conclusion[e] drawn by the subcommittee:

> They [alcoholic drinks] are useless as preventives of infectious or contagious disease; on the contrary, they appear to lessen the power of the organism to resist the effects of the cause of such disease.

The indorsed school physiologies teach that alcoholic drinks tend to make the drinker more, instead of less, susceptible to disease.

### PROFESSOR WELCH ON THE PATHOLOGICAL EFFECTS OF ALCOHOL.

The final paper in Volume II deals with the effects of alcohol as a cause of disease. It gives the result of experimental investigations with large amounts of alcohol. Some of the investigations were performed for the Committee of Fifty, some by independent investigators.

Instruction concerning the effects of large amounts of alcohol, whether given once or repeatedly, is not so important in the education of the young as instruction concerning the nature of alcohol and the danger of its use even in what are termed moderate quantities, because no drinker intends when he begins to drink to become a drunkard.

What the young need most to know is the danger of beginning to drink.

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[a] Vol. I, p. 374.
[b] Ibid.
[c] Ibid., p. 375.
[d] Ibid., p. 373.
[e] Ibid., p. xxi.

Some knowledge of the ultimate final results is necessary, however, both to show the poisonous nature of alcohol and the end to which its moderate use may lead.

Doctor Welch's conclusions concerning alcohol as a cause of disease contain the following statements, which confirm the teaching of the school text-books. Doctor Welch says:[a]

> Alcoholism, as pointed out by Strümpell, represents the summation of injuries inflicted upon the tissues of the body by alcohol, each injury being perhaps minimal in amount but the total constituting serious disease. It is not necessary to consider here the various theories concerning the mode of action of alcohol as a poison, or the extent to which it does injury by acting directly as such upon the cells, or indirectly through nutritive or other disturbances. In one way or another most of the organs and tissues of the body may become the seat of morbid changes attributable to the poisonous action of alcohol.

This is in harmony with the teachings of the indorsed text-books.

## Conclusion.

The experimental and other investigations concerning the physiological action of alcohol in the report of the Committee of Fifty furnish no conclusive evidence for regarding the temperance instruction in our schools as "unscientific" or "undesirable." On the contrary, the judgment expressed in the report prepared by Doctors Bowditch and Hodge, and approved by the physiological subcommittee, declaring this system of instruction in our public schools an "incubus" and an 'excrescence" which should be removed, reveals a deplorable insensibility to the grave moral perils of that moderate drinking which the instruction they recommend would encourage. Their assumption that the seventy-five millions of people of this nation have been cajoled or driven into enacting laws requiring this instruction for their children is preposterous. The discussion which has preceded and accompanied this legislation during the past twenty years has been a continuous appeal to reason which has met with a continuous response. The American public is too intelligent, too patriotic, and too conscientious to have adopted this movement hastily or to retire from it in the face of the good it is doing.

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A reply to the report of Professors Bowditch and Hodge on scientific temperance instruction in the public schools is incomplete that fails to contain the following statement signed by the Massachusetts clergymen whose names are affixed. Omitted by oversight from the reply adopted by the convention, it is here appended.

Mary H. Hunt.

### THE ACTION OF THE MASSACHUSETTS STATE ASSOCIATION OF CONGREGATIONAL CHURCHES MISASCRIBED.

The report of Professors Bowditch and Hodge contains a very misleading account of the attempt made in Massachusetts in 1898–99 to induce the legislature of that State to strengthen the existing temperance education law. Doctors Bowditch and Hodge represent this attempt (Vol. I, p. 24) as "the latest effort of the department of 'scientific temperance instruction'" and again (p. 45) as a bill "intro-

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[a] Vol. II, p. 365.

duced by the Woman's Christian Temperance Union." These are misrepresentations of facts in each case.

The actual origin of this movement is set forth in the following statement made by the undersigned gentlemen, pastors of Congregational churches in Boston:

The attempt made in 1899 to strengthen the Massachusetts temperance education law originated with the Massachusetts General Association of Congregational Churches in the following resolution passed by that body in 1896:

> Rejoicing in the good that has been accomplished through the temperance education law of our State, we believe the time has come when that law should be so strengthened that it will insure a temperance education to every child in every public school in our Commonwealth.
>
> We therefore hereby instruct our temperance committee to do whatever they deem to be wise to secure this end.[a]

In accordance with this resolution, the temperance committee of that association issued a call to the official representatives and leaders of sixteen other church, philanthropic, and temperance societies, which resulted in an organization called the Massachusetts Central Committee for the Promotion of Scientific Temperance Instruction in the Public Schools.

Dr. Charles L. Morgan, chairman of the temperance committee of the Association of Congregational Churches, was made chairman of this central committee. Among the well-known members were Bishop Mallalieu, Dr. Alexander McKenzie, Dr. George C. Lorimer, Dr. Francis E. Clark, Hon. John D. Long, and ex-Governor William Claflin.

A bill was presented to the Massachusetts legislature in behalf of this central committee and the organizations they officially represented, specifying certain changes needed in the temperance-education law to make it more effective and thus to bring this State into line with other leading States, such as Illinois and New York, where laws having penalties and other features proposed for Massachusetts had been and are securing excellent results.

This bill soon encountered opposition in the form of another bill, the purpose of which is described in the report of Professors Bowditch and Hodge[b] as "an attempt in the direction" of "the removal [from our public schools] of this educational excrescence;" that is, the present system of scientific temperance instruction.

In support of this bill to weaken the existing law, Doctor Bowditch appeared, claiming to represent the Massachusetts Medical Society. The basis for his claim for this representation will be seen in the following facts:

Four years earlier, in 1895, Dr. G. W. Fitz,[c] in a paper read before the South Middlesex County Medical Society, complained that the study of physiology and hygiene was being taught from the standpoint of temperance, and accordingly introduced a resolution before

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[a] Minutes of Ninety-sixth Annual Meeting of General Association of Congregational Churches of Massachusetts, p. 108.

[b] Vol. I, p. 45.

[c] The following extract from a letter by Dr. G. W. Fitz (Vol. I, p. 52) further shows his attitude. He says: "I do not believe that the study of the physiology of alcohol should be introduced into any course below the high school. I do not believe it should be made compulsory by State law."

that body requesting the Massachusetts Medical Society to appoint a committee to consider the condition of instruction in physiology and hygiene in the public schools of this Commonwealth. He suggested that Doctor Bowditch be appointed as chairman of such committee.

The consideration of this subject thus solicited by Doctor Fitz was continued under Doctor Bowditch's chairmanship for four years previous to the legislative attempt to strengthen the law.

It is significant that the report of the Bowditch committee, chosen four years before, was made at a meeting of the councilors of the Massachusetts Medical Society, February 1, 1899, while the bill to strengthen the law was pending before the legislative committee.

In accordance with this recommendation of Doctor Bowditch's committee the councilors authorized moving for weakening amendments to the law. This bill, as stated above, was introduced in opposition to the State central committee's bill for strengthening the law.

By methods similar to those elsewhere described, by misrepresenting the provisions of the strengthening bill supported by the State central committee, by false charges of inaccuracy against the indorsed physiologists, by claiming the support of eminent physicians on the ground of the Cambridge statement, by circular letters sent out by Doctor Fitz to teachers, enough opposition to the proposal to strengthen the law was secured to cause a division in the legislative committee, and no bill was reported to the legislature.

At the next annual meeting of the State Association of Congregational Churches, May, 1899, a resolution was passed containing the following indorsement of the action of their temperance committee in asking for a stronger temperance-education law for Massachusetts.

> Your committee, to whom was referred the report of the committee on temperance, wish to express in behalf of the State association their hearty and honest thanks to the committee appointed last year at Greenfield for their unusual and unwearied labors in this great cause committed to their care. With rare devotion they have given their time, their strength, themselves, to a long-continued and legislative battle for improved temperance instruction in schools of the State, and we record herewith our high appreciation of their painstaking and brave service. And while their efforts have failed in securing a revision of the temperance laws, yet in the unanimous judgment of your committee, the temperance sentiment of Massachusetts has never received more wide-spread recognition than under the popular enlightenment and aroused moral sense generated by this campaign; so that the moral victory of this temperance crusade may prove more notable than any formal amendment to the existing law.

But for the opposition aroused by the aforesaid members of the Massachusetts State Medical Society, and the misrepresentations employed in securing the opposition of teachers and others, there is large reason to believe that the movement initiated by the State Association of Congregational Churches in favor of strengthening the Massachusetts law in 1899 would have been crowned with success. That the desire throughout the State for effectual legislation on this subject is thoroughly grounded in public opinion is shown by the following extract from the report of the legislative committee on education made at that time:

> A strong public sentiment exists in support of thorough instruction in physiological and hygienic truths as to alcohol and other narcotics with a view to the reduction of intemperance. This sentiment can not be disregarded in dealing with the question of modifying the present law.

These expressions from church and state in Massachusetts illustrate the condition of public sentiment at large, and show that one conclusion of the report of Professors Bowditch and Hodge is correct, namely, that the removal of this educational method for the prevention of intemperance from the public school system of this country will be no easy task.

CHAS. L. MORGAN, D. D.,
*Pastor Central Congregational Church, Jamaica Plain, Mass., and Chairman of Massachusetts State Central Committee for the Promotion of Scientific Temperance Instruction.*

ALBERT H. PLUMB, D. D.,
*Pastor Walnut Avenue Congregational Church, Boston, Mass.*

[Rev.] PERLEY B. DAVIS.

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